AMERICAN PSYCHOLOGICAL ASSOCIATION

Journal of Personality and Social Psychology:
Interpersonal Relations and Group Processes

© 2022 American Psychological Association
ISSN: 0022-3514

https://doi.org/10.1037/pspi0000393

"Just Letting You Know … " Underestimating Others' Desire for Constructive Feedback

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People sometimes avoid giving feedback to others even when it would help fix others' problems. For example, only 2.6% of individuals in a pilot field study provided feedback to a survey administrator who had food or lipstick on their face. Five experiments ($N = 1{,}984$) identify a possible reason for the lack of feedback: People underestimate how much others want to receive constructive feedback. Initial experiments demonstrated this underestimation of others' desire for feedback in hypothetical scenarios (Experiment 1), recalled feedback experiences (Experiment 2), and real-time feedback among friends (Experiment 3). We further examine how people ascertain others' desire for feedback, testing how much they consider the potential consequences of feedback for *themselves* (e.g., discomfort giving feedback or harm to their relationship with the receiver) or the *receiver* (e.g., discomfort receiving feedback or value from feedback). While we found evidence that people consider both types of consequences, people particularly underestimated how much receivers value their feedback, a mechanism not extensively tested in prior research. Specifically, in Experiment 4, two interventions—making feedback-givers consider receivers' perspectives (enhancing consideration of receivers' consequences) or imagine someone else providing feedback (reducing consideration of givers' consequences)—both improved givers' recognition of others' desire for feedback compared to no intervention, but the perspective-taking intervention was most effective. Finally, Experiment 5 demonstrates the underestimation during a financially incentivized public-speaking contest and shows that giving less constructive feedback resulted in less improvement in feedback-receivers' performances. Overall, people consistently underestimate others' desire for feedback, with potentially negative consequences for feedback-receivers' outcomes.

Keywords: feedback, help, prosocial, relationships, misprediction

Supplemental materials: https://doi.org/10.1037/pspi0000393.supp

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Imagine that you are chatting with some colleagues at work when a new client approaches. One of your colleagues introduces the client but mispronounces their name and continues to do so throughout the conversation. Would you correct your colleague's mispronunciation or let them continue making the same mistake? We suspect many people might find the latter option appealing for a variety of reasons. Now imagine instead that *you* are the person who has mispronounced the client's name. Would you want someone to tell you about your mistake? Likely, you would want to learn about your error right away so that you could fix the mispronunciation as quickly as possible and repair relations with the client. This thought experiment highlights a discrepancy between a focal individual who wants to get feedback (i.e., the potential feedback-receiver) and an observer who may hesitate to provide the useful feedback (i.e., the potential feedback-giver).

Situations in which one person unknowingly does something wrong (or is unaware that something problematic has happened to them) and another person has the opportunity to provide feedback to improve the person's situation are not uncommon. Offering *constructive feedback*[1]—that is, telling someone something specific and actionable that they could change to improve their well-being (Bee & Bee, 1998; Cannon & Witherspoon, 2005; Harber, 1998; Hattie & Timperley, 2007), such as warning a colleague that they interrupt others or telling a friend they say "like" too much during presentations—can be extremely valuable. But as the opening example illustrates, the value of the feedback might be more apparent to the person with the problem than to the person giving the feedback. This article examines when and why people underestimate others' desire for constructive feedback—a misunderstanding that can

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The data and materials are available at: https://osf.io/9r8sq/.

Nicole Abi-Esber played a lead role in conceptualization, formal analysis, investigation, methodology, project administration, writing of original draft, and writing of review and editing. Jennifer E. Abel played a supporting role in conceptualization, investigation, methodology, project administration, writing of original draft, and writing of review and editing. Juliana Schroeder played a supporting role in conceptualization, investigation, methodology, writing of original draft, and writing of review and editing. Francesca Gino played a supporting role in conceptualization, writing of original draft, and writing of review and editing.

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[1] Across various literatures, constructive feedback has also been referred to as "actionable feedback" (e.g., Cannon & Witherspoon, 2005), "corrective feedback" (e.g., Hattie & Timperley, 2007), and "developmental feedback" (e.g., Adler et al., 2016).

potentially reduce people's willingness to provide feedback and consequently harm others' outcomes.

The Desire for Constructive Feedback

Scholars have repeatedly shown that constructive feedback is instrumental for aiding learning and performance (Ashford, 1986; Ashford & Cummings, 1983; Atkinson, 1964; Bandura & Cervone, 1983; Finkelstein & Fishbach, 2011; Fishbach et al., 2010; Kluger & DeNisi, 1996; Locke & Latham, 1990; London et al., 1999). Recipients seem to recognize these benefits as people commonly report wanting to get this type of feedback. In a survey of 899 full-time employees around the world, 72% of the respondents rated "managers providing critical feedback" as something that would be most helpful to them in their career going forward—and that was currently lacking (Zenger & Folkman, 2014). A McKinsey & Company global survey of over 12,000 managers revealed that managers consider "candid, insightful feedback" extremely important to their career development ($M = 75$ on a scale measuring importance to their development from 1 to 100; Cannon & Witherspoon, 2005).

However, despite wanting constructive feedback themselves, people often avoid giving it to others. A performance management survey conducted in 53 countries showed that only 5% of employees believed that their managers provided candid and critical feedback about their performance (Mercer, 2013). Indeed, managers tend to avoid giving critical feedback to employees (Fisher, 1979) or inflate it when they have to provide it (Waung & Highhouse, 1997). Most managers moreover do not believe their companies do a good job of providing such feedback (Cannon & Witherspoon, 2005). And people are generally reticent to deliver feedback that is negative, even when it is constructive (Brown & Levinson, 1987; Dibble & Levine, 2010; Jeffries & Hornsey, 2012; Tesser & Rosen, 1975).

Why do people sometimes hesitate to provide feedback despite the apparent demand for it? Several potential reasons have been explored by extant research. For one, people sometimes fear that providing feedback will have negative consequences, such as hurting the recipient or damaging the feedback-giver's popularity (Ende, 1983). Given people's hardwired ability to detect pain and suffering in others (Craig, 2009; Levine & Cohen, 2018), they may fear upsetting the other person and consequently prioritize avoiding interpersonal harm over being honest (Gray et al., 2012; Haidt & Graham, 2007; Schein & Gray, 2018). For another, given that people aim in social communication to "save face" (Goffman, 1967) and avoid being offensive or impolite (Bond & Anderson, 1987), people may prefer not to share opinions that could be viewed as negative (DePaulo & Bell, 1996). People may infer others will resent their honesty (e.g., Levine & Schweitzer, 2014) and, consequently, withhold feedback. Finally, a third reason could be a simple lack of motivation. Potential feedback-givers may not be motivated to exert the effort to provide feedback if they are busy or if they do not care about the potential recipient. Effort feels aversive and is costly (Kurzban, 2016), and people prefer to avoid exerting effort, both cognitive and physical, favoring instead the less demanding course of action (Kool et al., 2010). Providing high-quality feedback requires significant effort: Givers must recall receivers' behaviors, identify what can be improved, and clearly and sensitively convey the information (Landy & Farr, 1980). Would-be feedback-givers may not always have the time or energy to spend effort providing feedback (Minnikin et al., 2021).

Beyond these prior reasons that have been explored, the present article considers a novel reason for why people withhold feedback. Specifically, people may fail to recognize the *benefits* their feedback could provide to a potential recipient and thus underestimate the potential recipient's desire for feedback. In other words, whereas prior research suggests that people withhold feedback to avoid negative outcomes for themselves and others, or simply due to lack of motivation, we instead propose they may also do so because they do not fully recognize the tangible positive consequence of their feedback for others' outcomes, leading them to underestimate others' desire for feedback. This hypothesis stems from a broader literature on egocentric bias showing that people typically rely, at least to some degree, on their own perspective when predicting others' mental states (Epley et al., 2004; Ross & Sicoly, 1979; Tamir & Mitchell, 2013). In the context of giving feedback, people's focus on their own perspective would lead them not just to consider the negative consequences of feedback for themselves (e.g., discomfort giving feedback, self-image concerns) but also to overlook the potential positive consequences for others (e.g., fixing others' problems). Overlooking the positive consequences of feedback for others could then result in underestimating how much others will want the feedback.

Hypothesis 1: People underestimate how much others want to receive constructive feedback.

How People Ascertain Others' Desire for Constructive Feedback

When trying to determine how much another person wants to get constructive feedback, two broad sets of concerns, we suggest, are on people's minds: the consequences of giving feedback for themselves and the consequences of receiving feedback for the other person. These two considerations encapsulate other explanations that have been proposed for why and how people give feedback. For example, Waung and Highhouse (1997) suggested that people inflate their feedback both to avoid conflict for themselves and to buffer the potential discomfort for receivers. Likewise, Jeffries and Hornsey (2012) suggested that people are reluctant to give feedback both to avoid being seen as the bearer of bad news and to avoid negative feelings for the feedback-receiver. Dibble and Levine (2013) relatedly demonstrated that people avoid sharing bad news due to self-presentation reasons as well as sensitivity to receivers' emotions. Notably, as exemplified in the aforementioned papers, prior research particularly examined beliefs about the negative consequences of feedback (e.g., hurt feelings, reputational damage, relationship harm), rather than positive ones (value for the feedback-receiver). Below, we consider in turn how each factor—consequences for oneself, which tend to be negative, and for the other person, which could be positive or negative—are weighted when assessing others' desire for feedback.

Considerations About Consequences for Feedback-Givers

Through processes of motivated reasoning, potential feedback-givers may justify a desire to avoid negative consequences for

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themselves by believing potential receivers do not want feedback.[2] This is consistent with prior research suggesting that people sometimes make incorrect judgments about others' preferences because they want to avoid the possibility of experiencing negative mood states themselves (Chambers & Windschitl, 2004; Ditto & Lopez, 1992). Specifically, feedback-givers may feel uncomfortable providing feedback (Bond & Anderson, 1987; Tziner & Murphy, 1999) due in part to their anticipation of receivers' possible negative emotional reactions (Brown & Levinson, 1987; Jeffries & Hornsey, 2012; Rosen & Tesser, 1970; Tesser & Rosen, 1975). We predict that the more people anticipate feeling uncomfortable providing feedback, the less they will think others want feedback.

> *Hypothesis 2:* Potential feedback-givers' anticipated discomfort providing feedback predicts their estimation of a potential receiver's desire for feedback.

Giving feedback could also harm a giver's relationship with the receiver of the feedback. Critical feedback can lead to confrontation, defensiveness, and negative evaluations from receivers (Baron, 1988; Belschak & Den Hartog, 2009; Gibb, 1973) and can lead receivers to view the feedback-giver as indifferent, biased, or even hostile (Yeager et al., 2014). Indeed, people inflate their feedback in order to avoid damaging their relationships (Waung & Highhouse, 1997) and due to concerns that the receiver will associate them with the bad news, damaging their self-image (Rosen & Tesser, 1972). For these reasons, we predict that the more feedback-givers perceive that their constructive feedback has the potential to harm their relationship with the receiver, the less they will estimate that potential receiver's desire for feedback.

> *Hypothesis 3:* Potential feedback-givers' anticipation of how much the feedback will harm their relationship with a potential receiver predicts their estimation of the receiver's desire for feedback.

Considerations About Consequences for Feedback-Receivers

Feedback-givers' beliefs about the ramifications of their feedback for the recipient—both potentially negative ramifications, such as receivers' felt discomfort upon hearing feedback, and positive ramifications, such as the opportunity to fix a problem—should inform their estimations of receivers' desire for feedback. First, feedback-givers may anticipate that those who received feedback will experience discomfort and related emotions such as embarrassment and shame, especially if the feedback implies they did something wrong (Belschak & Den Hartog, 2009; Fishbach et al., 2010; Lazarus, 1991). Receiving constructive feedback that is negative can also threaten a person's self-image and self-efficacy (Brown & Levinson, 1987; Dibble & Sharkey, 2017). We predict that the more that feedback-givers expect potential receivers to experience negative emotions like discomfort upon receiving feedback, the less they will believe receivers want their feedback.

> *Hypothesis 4a:* Potential feedback-givers' anticipation of how much the feedback will make a potential receiver feel uncomfortable predicts their estimation of the receiver's desire for feedback.

Unlike feedback-givers' expectations about their own experiences giving feedback, givers' predictions about *receivers*' experiences can be directly compared with receivers' own reports about how they actually felt receiving feedback. As such, we can examine whether feedback-givers' predictions are accurate—that is, aligned with receivers' own reports. Based on the preexisting literature, we suspect misalignment in systematic ways. Most relevant, one recent set of experiments demonstrates that people refrain from having honest conversations because they expect others to react more negatively to their honesty than others actually do (Levine & Cohen, 2018). Specifically, close relational partners rated honest conversations as more enjoyable, socially connecting, and meaningful than those initiating the honest conversations predicted. Extending from this prior work in the context of constructive feedback, it is possible that feedback-givers may overestimate receivers' expected discomfort, which could then mediate givers' underestimation of receivers' desire for feedback.

> *Hypothesis 4b–c:* Potential feedback-givers expect their feedback to make potential receivers feel more uncomfortable than receivers expect (b) and this difference in expected discomfort mediates givers' underestimation of receivers' desire for feedback (c).

The last—and most novel, compared to the preexisting literature—consideration that someone may contemplate when assessing another person's desire for feedback is the potential benefit of receiving feedback. Constructive feedback is unique among other types of information or feedback because it has the potential to help others directly, for instance, by facilitating goal-directed behaviors, enhancing motivation and learning (Bandura & Cervone, 1983; Finkelstein & Fishbach, 2011; Fishbach et al., 2010), and improving people's awareness of how others perceive them (Ashford & Tsui, 1991). If people recognize that a potential receiver could significantly improve their well-being because of the feedback, they should also think receivers will want the feedback.

> *Hypothesis 5a:* Potential feedback-givers' anticipation of the value of their feedback to potential receivers predicts their estimation of a potential receiver's desire for feedback.

However, given that people typically attend less to others' perspectives than to their own when predicting others' thoughts and feelings (Ross et al., 1977; Ross & Sicoly, 1979), we suspect that feedback-givers may underattend to how valuable their feedback could be to receivers. Indeed, recent empirical findings demonstrate that people underestimate others' appreciation for prosocial gestures, specifically for showing gratitude (Kumar & Epley, 2018) and offering a compliment (Boothby & Bohns, 2021; Zhao & Epley, 2021). In the less overtly positive domain of giving constructive feedback, receivers may value constructive feedback more—finding it more helpful and being more appreciative and grateful—than feedback-givers realize if they are overly focused on themselves.

[2] While it is possible that providing constructive feedback could also have positive consequences for the giver (e.g., feeling an altruistic "warm glow"), because constructive feedback typically identifies a problem to fix, it has greater potential for negative impact (e.g., making the giver feel uncomfortable or harming their relationship with the other person).

Thus, we hypothesize that people will underestimate how much others will value their constructive feedback, which may mediate their underestimation of others' desire for feedback.

Hypothesis 5b–c: Potential feedback-givers expect their feedback to be less valuable than do potential receivers (b) and this difference in expected value mediates givers' underestimation of receivers' desire for feedback (c).

Our mechanisms correspond to different explanations for underestimating the desire for feedback. If we expect that the primary reason people avoid giving feedback is to avoid unpleasant outcomes (the prevailing reason in prior literature), then we would expect reasons about the givers' own experiences to be driving the underestimation of feedback. However, if we expect the underestimation of others' desire for feedback is the primary reason people avoid giving feedback, beliefs about the feedback-receiver's experience should be the main driver of the effect.

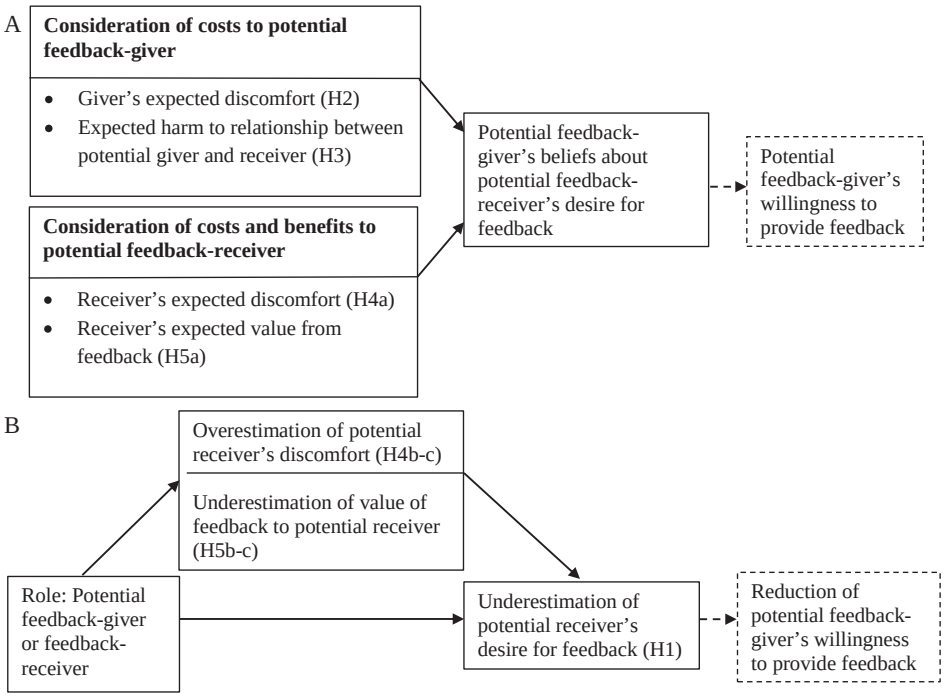
Figure 1 visualizes the proposed hypotheses.

Overview of Studies

The present article presents one pilot study and five experiments that each test our primary Hypothesis (H1) that people underestimate others' desire for constructive feedback and explore potential mechanisms (H2–H5), related moderators, and consequences underlying this misunderstanding. All of our studies involve opportunities for constructive feedback that contain three characteristics: (a) the undesirable situation or behavior could be fixed or corrected by the potential feedback-recipient, (b) the potential recipient is unaware of the situation or behavior, and (c) it would be beneficial to the potential recipient to fix or correct the situation or behavior. These characteristics ensure that the feedback is actually constructive and provide a more conservative test of our hypotheses because we only look at contexts in which it is clear that the feedback can be helpful.

We examine cases of giving and receiving feedback using field and laboratory studies with real feedback (Pilot Study, Experiment 3, and Experiment 5), recalled instances of real feedback (Experiment 2, Experiment 4), and scenarios (Experiment 1). Our pilot study first demonstrates that people are very unlikely to give constructive feedback in a field setting, even when it could immediately improve the other person's well-being. Experiment 1 examines whether people underestimate others' desire for feedback across 10 different situations, and tests our proposed mechanisms: How much the effect is influenced by considerations about consequences for the feedback-receiver and for the feedback-giver. Asking participants to recall actual times in which they could have received or given feedback, Experiment 2 again tests whether feedback-givers underestimate receivers' desire for feedback, as well as testing the hypothesized psychological mechanisms and examining whether feedback-givers who most underestimate others' desire for feedback are least likely to give feedback. Experiment 3 tests whether the underestimation of desire for feedback occurs even among pairs who know each other well.

Figure 1
Summary of Hypotheses



Note. Panel A summarizes hypotheses concerning potential feedback-givers' considerations in determining potential feedback-receivers' desire for feedback. Panel B depicts hypothesized reasons why potential feedback-givers underestimate potential feedback-receivers' desire for feedback. Both panels depict the potential consequence for the willingness to give feedback in a dotted box.

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Experiment 4 tests two possible interventions to make feedback-givers more accurate: increasing perspective-taking (thus nudging givers to focus more on consequences for receivers) and having someone else provide the feedback (thus nudging givers to focus less on consequences for themselves). Finally, Experiment 5 tests the extent of the underestimation of desire for feedback and its consequences by examining feedback interactions during a public-speaking competition with real financial outcomes. It also tests whether the amount of constructive feedback given is associated with improvements in public-speaking performance.

Throughout this article, we assume that the divergence between receivers' reported desire for feedback and givers' prediction of their desire is due to givers *underestimating* receivers' true desire. However, another potential explanation for any giver–receiver discrepancies is that receivers could be overestimating their own true desire for feedback (and, perhaps, givers are accurate). For instance, it is possible that receivers expect to want the feedback (e.g., because they think they should), but after receiving the feedback, they wish they had not gotten it and even resent the feedback-giver more than they realized they would. Experiments 2–5 address this alternative possibility by examining receivers' expected desire for feedback (and other expectations, like how much they would value the feedback and their discomfort) *before* getting the feedback as well as receivers' actual appreciation of feedback and experiences *after* getting the feedback. We find that the expected and actual value of feedback (e.g., receivers' appreciation, before and after receiving the feedback) are not significantly different, suggesting that any gap in giver/receiver expectations is driven more by givers' inaccuracy in predicting receivers' desire for feedback than by receivers' inaccuracy in predicting their own desire for feedback.

In all experiments, we report all measures, manipulations, and exclusions. We a priori determined to collect 100 people per experimental condition, except in the Pilot Study in which we collected data for 3 days. We preregistered our hypotheses and analyses for Experiments 1–5 (see links in experiments below). Our preregistrations sometimes deviate from the analyses reported in the article; we describe all deviations in the Supplemental Materials. Data, materials, and supplemental files are available online on the Open Science Foundation website (https://osf.io/9r8sq/?view_only=6914b3e75e7f49f7b2d9f9c59bca1473).

Pilot Study: Face Blemishes

To examine people's propensity to give constructive feedback, different researchers approached potential survey-takers around a university campus on 3 consecutive days. Each researcher wore a noticeable and fixable blemish on her face (e.g., smeared lipstick); the true purpose of the study was to record how many survey-takers told the researcher about the blemish on her face. We hypothesized that, because people underestimate others' desire for constructive feedback, few people would provide constructive feedback and help the researcher in these conditions.

Method

Participants

We planned to recruit as many participants as possible during a busy campus center at a university during lunchtime on 3 consecutive weekdays. Out of 217 recruited participants, following our a priori exclusion criteria, we excluded two participants because they did not consent to the survey and another three participants because they reported having heard about the survey before from a friend or classmate. Of the remaining 212 participants, 57 (26.9%) claimed not to notice the blemish on the researcher's face[3] and therefore did not complete the survey. In total, 155 participants completed the entire survey in exchange for \$5.00 (M_{age} = 22.8 years, SD = 9.3; 61% females).

Procedure

Two researchers conducted the study at a time: one of whom was assigned to recruit participants and the other who wore a visible blemish on their face about which they could receive feedback (i.e., the target researcher). The recruiter approached students and asked them if they were interested in taking a survey for \$5.00. If they said yes, the recruiter gestured toward the target researcher, a few feet away with her back turned. The target researcher either wore a red marker line across her nose (Day 1), held a chocolate bar in her hand and had a chocolate smudge on her face (Day 2), or wore pink sparkly lipstick with a lipstick smudge across her face (Day 3). See Figure 2 for photos of the researchers.

The target researcher verbally asked the participants several questions to ensure that the participants looked at the target researcher's face (and would thus notice the blemish) before giving them the survey to complete. The researcher asked participants if they were a student, what they were studying, if they had done a study with the lab before, and if yes, which studies they had participated in before. Participants then completed the survey, were paid, and thanked. While they completed the survey, the researcher recorded whether or not the participant told them about the blemish on their face (yes, no, other).

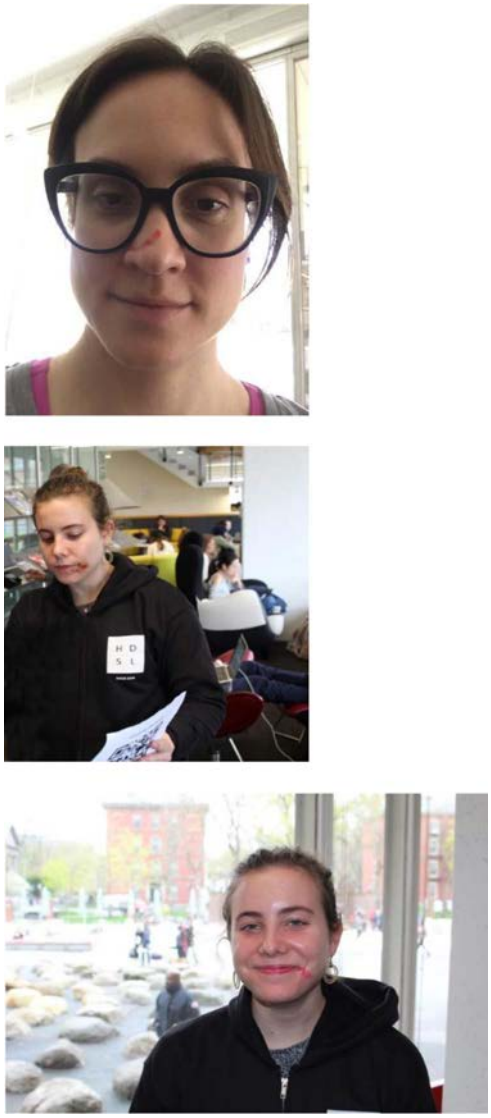
Survey

To ensure our analyzed sample noticed the face blemish and was not aware of the nature of the study, participants completed the following questions: "The researcher who handed you the survey a few minutes ago had something on their face. Did you notice this?" (Yes/No) and, "Did you hear about something like this happening from anyone who took the study earlier" (Yes/No), and, "Do you know the researcher?" (Yes/No). Participants who said "no" to the first question or "yes" to the other two questions were directed out of the survey. Remaining participants then predicted, "How much do you think someone in that scenario (talking to people with something on their face) would want someone to tell them?" (1 = *they definitely would not want to be told*, 10 = *they definitely would want to be told*). To better understand the reasons why participants gave feedback or not, we asked an open-ended question: "Why did you choose [not] to tell the researcher about the mark on their face?"

To measure whether participants were more likely to give feedback if they were inclined to be prosocial, we first included three previously validated scales of prosocial orientation (Grant, 2008),

[3] Given how obvious the blemish was on the researcher's face (see Figure 2), we think it is very unlikely that 27% of the sample truly did not notice it and suspect instead that participants may have claimed not to notice to avoid further questioning (or having to give feedback). However, we took participants at their word.

Figure 2
Photos of the Researchers in Pilot Study



Note. This figure shows the researchers with red marker (Day 1), a chocolate smudge (Day 2), and a lipstick smudge (Day 3) on their faces. See the online article for the color version of this figure.

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other-orientation (De Dreu & Nauta, 2009), and conflict avoidance (Morris et al., 1998; see Supplemental Materials for items). At the end of the survey, we asked a series of exploratory items asking participants to predict (if they did not give feedback) or describe (if they did give feedback) the consequences of the feedback and to rate several aspects of the situation (see Supplemental Materials).

Results

Of the 155 people who reported noticing the face blemish, only four people (2.6%) told the researcher about it. Two research assistants ($\alpha = .70$) blind to hypotheses coded participants' answers to the question of why participants did not tell the researcher about the blemish. We categorized the participants' answers into two categories of reasons: (a) Considerations about consequences for the self (e.g., that the participant felt it was not their business to tell the researcher or did not want to appear rude; 37% of comments) and (b) Considerations about consequences for the receiver (e.g., that the participant did not want to offend or embarrass the researcher; 40% of comments). The remaining 23% of comments contained other reasons.[4] Only 3% of comments mentioned any possibility that their feedback could help the researcher, providing preliminary support for our hypothesis that people may especially fail to consider beneficial consequences for receivers when deciding whether to give feedback. See Table 1 for example representative answers.

After realizing the purpose of the study, the participants predicted that someone walking around with something on his or her face would want to know at $M = 5.73$ ($SD = 2.82$) on a 1–10 scale item, not significantly different from the scale midpoint of 5.5, *one-sample* $t(154) = 1.02$, $p = .31$, $d = 0.08$. Because the number of participants who informed the researcher about the face blemish was even lower than expected (i.e., only 4 participants), we did not have a large enough sample to analyze differences between those who did and did not provide feedback on the prosocial orientation, other-orientation, or conflict management scales.

Discussion

The pilot study showed that very few people (only 2.6%) actually provide constructive feedback even when they notice a problematic situation (e.g., a mark on someone's face) that could be easily fixed via their feedback. The average person in the study recognized that an individual with something on their face would at least somewhat want to know about it, yet still chose not to provide feedback. This study further examined explanations for why people chose not to give feedback, finding that people both consider consequences for themselves (e.g., wanting to maintain a positive self-image in the eyes of the other person), and for the other person (e.g., not wanting to embarrass the other person). The rest of our experiments more systematically assess these two potential considerations that people make when deciding to give feedback and also directly test whether people underestimate others' desire for feedback, which we did not measure in the pilot data.

Experiment 1: Feedback at Work

Experiment 1 assigned people to imagine either giving or receiving feedback about 10 different workplace situations. We designed scenarios that fit our theoretical criteria (i.e., the potential recipient could fix the undesirable situation or behavior, is unaware of the situation or behavior, and would benefit from fixing it). For instance, two scenarios involved having sweat stains on one's shirt and repeatedly mispronouncing a word during a presentation. We aimed to test whether givers underestimate receivers' desire for feedback and, if so, why.

Additionally, we explored whether and how relationship closeness affects the accuracy of people's predictions of each other's

[4] Specifically, 9% of participants mentioned not wanting to make the effort, giving comments such as "I didn't care" or "I was in a hurry," while the remaining participants gave various reasons such as "The researcher looked busy" or "It was not a good time."

Table 1
Participants' Stated Reasons for Not Providing Constructive Feedback in the Pilot Study

Reason	Representative quotes
Considerations about consequences for the self	I didn't want to seem like I am judging anyone. I didn't want her to think I was rude.
Considerations about consequences for the potential feedback-receiver	I didn't want to embarrass them by drawing attention to it. I didn't want to make them feel bad about not knowing there was something on their face.

desire for feedback by manipulating whether participants imagined giving or receiving feedback to or from strangers, acquaintances, or close friends. People who are close to each other might more accurately predict the other's desire for feedback due to knowing them better, but might also be more fearful of damaging the relationship with their feedback and thus may be less accurate. We also explored how the consequentiality of an issue affects estimations of a person's desire for feedback by varying the issues in the scenarios, making half of them less consequential (e.g., having sweat stains on one's shirt) and the other half more consequential (e.g., making repeated errors at work).

Method

We preregistered our hypotheses and analyses at https://aspredicted.org/gt78e.pdf.

Participants

We planned to recruit 720 participants, aiming for 120 in each of the six experimental conditions to have sufficient statistical power to detect a medium effect size. In total, 725 adults from Prolific Academic agreed to participate in exchange for $1.60. We recruited participants who had been recently employed, as the scenarios we asked them to imagine took place in a workplace. We asked a prescreening question to confirm that participants had been employed full time in a job recently: "Have you had a full-time job in the last 12 months?" (Yes/No). This was asked before any survey materials were presented; four participants did not pass the prescreen questions, and the 721 remaining participants took the survey (M_{age} = 34.7 years, SD = 9.9, 37% females).

Design

The experiment design was 2 (Role: Feedback-Giver, Feedback-Receiver) × 3 (Relationship Closeness: Stranger, Acquaintance, Close Friend) × 2 (Consequentiality of Issue: Less Consequential, More Consequential), between-participants. Each participant viewed three out of 10 possible scenarios (within-subjects; randomized order).

Procedure

The survey asked participants to imagine experiencing different social scenarios at work and report how they would feel in those situations. The scenarios that involved issues that we thought would be less consequential were (a) having sweat stains on one's shirt, (b) having a rip on the seat of one's pants, (c) having food on one's face, (d) mispronouncing a client's name, and (e) obviously texting on one's phone during a meeting. The more consequential issues were (f) making an error in a report, (g) speaking extremely quickly during a presentation, (h) interrupting a client multiple times during a meeting, (i) framing one's questions in a very aggressive way, and (j) sounding rude in emails.

The primary dependent variable was the difference between givers' and receivers' predicted desire for receiving feedback (Givers: "How much do you think your colleague wants to be told that they have sweat stains on their shirt?" 0 = *definitely does not want to be told*, 10 = *definitely wants to be told*; Receivers: "How much do you want your colleague to tell you that you have sweat stains on your shirt?" 0 = *definitely do not want to be told*, 10 = *definitely do want to be told*). To be thorough, we additionally estimated givers' likelihood of providing feedback ("How likely are you to actually tell your colleague that they have sweat stains on their shirt?" 0 = *very unlikely*, 10 = *very likely*) and receivers' predictions of givers' likelihood ("How likely do you think it is that your colleague will tell you that you have sweat stains on your shirt?" 0 = *very unlikely*, 10 = *very likely*).

We also varied relationship closeness in the imagined scenarios. Givers and receivers in the "Stranger" condition imagined that the colleague they were witnessing in the scenario was a stranger. Their instructions were to imagine that "this is a colleague who you have never seen before, and you aren't sure if you will see them again in the future. You consider this colleague to be a stranger." Givers and receivers in the "Acquaintance" condition imagined that the colleague they were witnessing in the scenario was an acquaintance. Their instructions were to imagine that "this is a colleague who you see from time to time (about once a week) and know a little bit. You consider this colleague to be an acquaintance." Finally, givers and receivers in the "Close Friend" condition imagined that the colleague they were witnessing in the scenario was their close friend. Their instructions were to imagine that "this is a colleague who you see all the time and know very well. You consider this colleague to be a close friend." All subsequent questions about desire for receiving feedback and predicted value and discomfort of receiving feedback were phrased according to the assigned relationship.

Next, we told participants to imagine that, regardless of how they responded in the prior questions, they gave or were given feedback, and then asked them to predict the giver's and receiver's experience. To measure expectations of the receiver's experience, we examined receivers' discomfort upon getting feedback and the value they would get from the feedback. Using the sweat stain scenario as an example, we asked five items measuring expected receiver discomfort (α = .88 for givers and α = .89 receivers), including how (a) uncomfortable (b) embarrassed (c) foolish (d) self-conscious "How do you think your colleague will feel when you tell them that they have sweat stains on their shirt?" (0 = *not at all uncomfortable/embarrassed/foolish/self-conscious*, 10 = *very uncomfortable/embarrassed/foolish/self-conscious*); and (e) "How much do you think that it will hurt your colleague's feelings when you tell them that they have sweat stains on their shirt?" (0 = *not at all*, 10 = *very much*). We measured the expected value of the feedback for receivers with three items (α = .88 for givers and α = .94 receivers): (a) "How valuable do you think it would be for your colleague to know that they have sweat stains on their shirt?" (0 = *not at all*

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valuable, 10 = *very valuable*); (b) "How much do you think that knowing that they have sweat stains on their shirt will help your colleague?" (0 = *not at all helpful*, 10 = *very helpful*); and (c) "How grateful would your colleague be that you told them that they have sweat stains on their shirt?" (0 = *not at all grateful*, 10 = *very grateful*). Receivers answered the above items but rephrased so that receivers reported their own discomfort and expected value from the feedback.

To measure expectations of the giver's experience, we examined givers' discomfort upon providing the feedback and perceptions of the feedback harming the giver/receiver relationship. We measured expected giver discomfort with four items ($\alpha = .90$ for givers and $\alpha = .89$ receivers), asking how (a) uncomfortable (b) embarrassed (c) foolish and (d) self-conscious "do you think you will feel when you tell your colleague that they have sweat stains on their shirt?" (0 = *not at all uncomfortable/embarrassed/foolish/self-conscious*, 10 = *very uncomfortable/embarrassed/foolish/self-conscious*). Finally, we measured expected relationship harm/benefit with four items (reverse coded, $\alpha = .93$ for givers and $\alpha = .89$ receivers): (a) "How much do you think it will affect your relationship with your colleague after you tell them that they have sweat stains on their shirt?" (0 = *it will harm our relationship*, 10 = *it will improve our relationship*); (b) "How much do you think your colleague will like you after you tell them that they have sweat stains on their shirt?" (0 = *way less*, 10 = *way more*); (c) "How much do you think your colleague would want to see and/or interact with you after you tell them that they have sweat stains on their shirt?" (0 = *they would definitely not want to see/interact with me again*, 10 = *they would definitely want to see/interact with me again*); and (d) How much do you think that your colleague will believe you care about them because you told them that they have sweat stains on their shirt? (0 = *not at all*, 10 = *very much*). Receivers answered the above items but rephrased so that receivers predicted givers' discomfort and their own beliefs about the relationship. Additionally, we preregistered and measured givers' reports and receivers' predictions for how good the giver would feel from giving feedback: "How much would you feel good about telling your colleague [do you think your colleague would feel good about telling you] that they [you] have sweat stains on their [your] shirt (for instance, because the information could be helpful)?" (see Supplemental Materials for analysis).

At the end of the survey, we asked participants four questions as manipulation checks for evaluating which issues were seen as more consequential[5]: (a) "How deleterious do you think the consequences would be for the person to whom it happened or the person who did it (assuming that person did not realize what happened or what they did)?" (1 = *not bad at all*, 7 = *extremely bad*); (b) "How easy would it be for the person to whom it happened/the person who did it to fix or change the situation (after they realize what happened or what they did)?" (1 = *not easy at all*, 7 = *extremely easy*); (c) "How negatively do you think it reflects on the person to whom it happened/the person who did it (assuming that person did not realize what happened or what they did)?" (1 = *not negatively at all*, 7 = *extremely negatively*); and (d) "How much do you think people will assume it was the fault of the person to whom it happened/the person who did it (assuming that person did not realize what happened/what they did)?" (1 = *not their fault at all*, 7 = *very much their fault*).

Results

Desire to Give and Receive Feedback

Supporting our primary Hypothesis (H1), across the 10 scenarios givers believed that potential receivers wanted to be told ($M = 6.16$, $SD = 3.31$) less than receivers reported actually wanting to be told ($M = 7.66$, $SD = 2.82$), $t(2,158) = -11.36$, $p < .001$, $d = -0.49$, thereby underestimating receivers' desire for feedback. This result emerged for every scenario individually, ts < -2.42, ps $< .016$, ds < -0.33, except for the "food stuck in teeth" scenario ($p = .47$) and the "rip in pants" scenario ($p = .26$; see Figure 3).[6]

Moreover, consistent with this result, givers reported being less likely to actually provide potential receivers with feedback ($M = 6.34$, $SD = 3.30$) than receivers wanted to receive the feedback ($M = 7.66$, $SD = 2.82$), $t(2,158) = -10.00$, $p < .001$, $d = -0.43$. As an exploratory analysis, we found that receivers underestimated how likely givers would be to give the feedback ($M = 5.84$, $SD = 2.95$) compared to how likely givers reported they would be to give it ($M = 6.34$, $SD = 3.30$), $t(2,158) = 3.72$, $p < .001$, $d = 0.16$. In other words, givers were less likely to give feedback than receivers wanted, but were still more likely to give feedback than receivers expected.

Potential Mechanisms: Considerations About Consequences of Feedback for Self and Others

To test which of givers' predictions most closely aligned with their beliefs about receivers' desire for feedback, we conducted a regression model with givers' predictions about receivers' desire for feedback as the outcome variable, and givers' beliefs about their anticipated discomfort, receivers' discomfort, the potential for relationship harm, and the value of the feedback to the receiver as predictor variables. Results demonstrated that givers' anticipated discomfort providing feedback was a significant predictor of givers' beliefs about receivers' desire for feedback ($b = -.10$, $p = .003$), as was givers' expectations about relationship harm ($b = -.48$, $p < .001$) and givers' beliefs about receivers' value for the feedback ($b = .58$, $p < .001$), providing evidence for Hypotheses 2, 3, and 5a, respectively. We did not find support for Hypothesis 4a as givers' beliefs about receivers' discomfort was not a significant predictor. We also conducted robustness analyses controlling for the consequentiality of the feedback and relationship closeness and found the same pattern of results.

We further tested for other giver/receiver discrepancies in predicted receiver experiences (testing Hypotheses 4b and 5b). In a mixed-effects model with a random effect for participant (because each participant evaluated 3 scenarios) and a fixed effect for scenario, givers significantly overestimated how uncomfortable it would be for receivers to get feedback ($M = 5.50$, $SD = 2.24$)

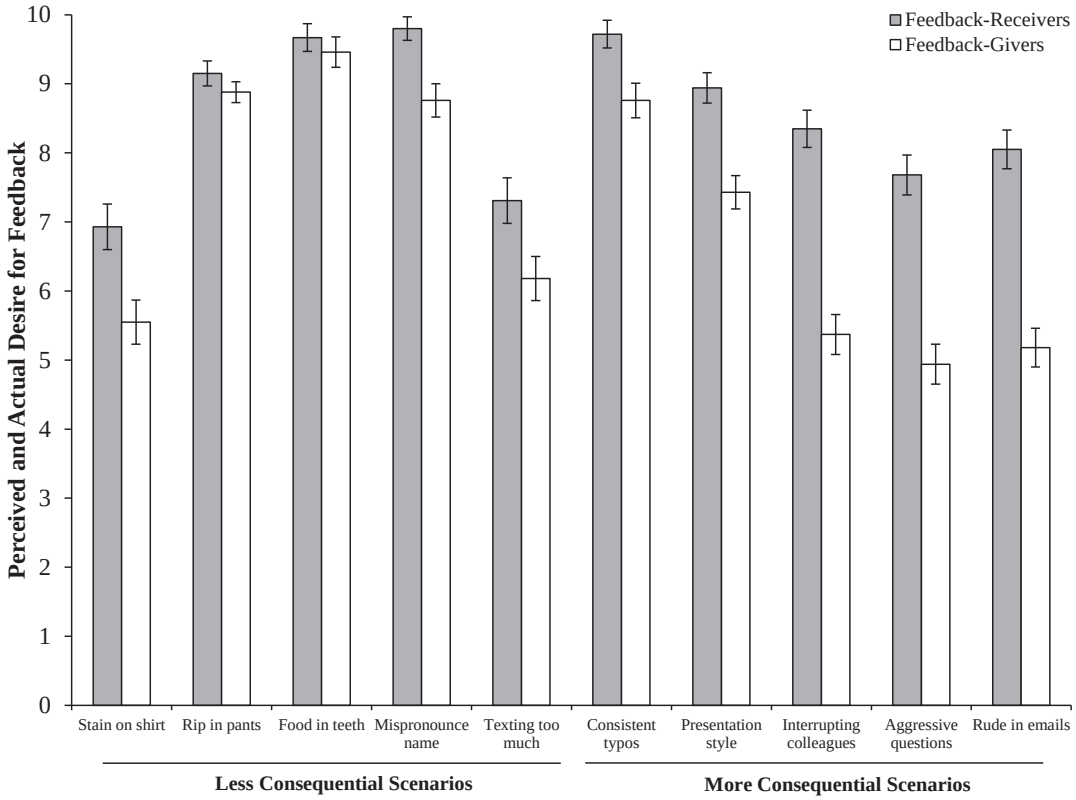
[5] Due to a survey error, we only asked these manipulation check questions for nine out of the 10 scenarios. The "interrupting" scenario was left out of the manipulation check questions. We also preregistered that we would collect participants' responses about whether they have actually experienced each of the situations at work, but, due to survey error, this question was not included in the survey.

[6] Although we preregistered a simple t-test analysis, we conducted a follow-up robustness analysis to control for the effect of scenario in a 2 (condition) × 10 (scenario) analysis of variance (ANOVA). A main effect of condition and scenario emerged, qualified by a significant interaction (Fs = 133.82, 51.44, and 29.05, respectively, ps $< .001$, $\chi^2 > .013$).

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Figure 3

Predicted and Actual Desire for Constructive Feedback in Experiment 1



Note. This figure shows feedback-givers' predicted and feedback-receivers' actual desire for constructive feedback across 10 workplace scenarios in Experiment 1. Givers systematically underestimate receivers' desire for feedback. Error bars represent 95% confidence intervals.

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compared to receivers' estimates ($M = 5.04$, $SD = 2.52$), $t(2,158) = 3.36$, $p < .001$, $d = 0.19$; and givers significantly underestimated how much the receivers would value getting feedback ($M = 6.81$, $SD = 2.43$) compared to receivers' estimates ($M = 7.63$, $SD = 2.47$), $t(2,158) = -6.95$, $p < .001$, $d = -0.34$.

To test Hypotheses 4c and 5c, we tested whether givers' overestimation of receiver discomfort and underestimation of receiver value significantly mediated their underestimation of receivers' desire for the feedback. In a bootstrap mediation model ("mediation" package in R, bootstrapped 10,000 simulations, Tingley et al., 2014) that included role condition as the independent variable, predictions and reports of receiver value and receiver discomfort as potential mediators, and desire for feedback as the dependent variable, a significant indirect effect emerged for receiver value (indirect effect = .71, 95% CI [.53, .88], $p < .001$) and receiver discomfort (indirect effect = .083, 95% CI [.041, .130], $p < .001$) as mediators, although we note that the discrepancy between predicted and actual receiver value was a much stronger mediator than the discrepancy between predicted and actual receiver discomfort. Thus, we found support for both Hypotheses 4c and 5c, although directionally stronger support for 5c.

Consequentiality of Issue in Scenario

Supporting our manipulation, the less consequential issues were indeed perceived to be less consequential than the more consequential issues. The less consequential issues reflected less negatively on the person ($M = 3.88$, $SD = 1.09$) compared to the more consequential issues ($M = 4.72$, $SD = 1.05$), $t(1,440) = -14.91$, $p < .001$, $d = -0.78$, were rated as less deleterious ($M = 4.23$, $SD = 1.09$) compared to the more consequential issues ($M = 4.69$, $SD = 1.07$), $t(1,440) = -8.07$, $p < .001$, $d = -0.42$, were considered less the person's fault ($M = 4.28$, $SD = 1.13$) compared to the more consequential issues ($M = 5.22$, $SD = .99$), $t(1,440) = -16.45$, $p < .001$, $d = -0.87$, and were considered easier to fix ($M = 4.86$, $SD = 1.09$) compared to the more consequential issues ($M = 4.47$, $SD = 1.08$), $t(1,440) = 7.22$, $p < .001$, $d = 0.38$.

In a regression analysis that predicted the desire for feedback with role type (giver vs. receiver), consequentiality of the issue (less vs. more consequential), and the interaction between role and consequentiality as predictors, there were main effects for role ($b = 2.21$, $p < .001$) and consequentiality ($b = 1.62$, $p < .001$), as well as an interaction ($b = -1.38$, $p < .001$). Decomposing the interaction, the

effect of role was stronger among the more consequential issues, such that givers were even less likely to recognize the desire for feedback ($M = 5.34$, $SD = 3.17$) that receivers felt ($M = 7.55$, $SD = 2.69$), $t(1,078) = -12.30$, $p < .001$, $d = -0.75$, for more consequential issues compared with less consequential issues, although givers still underestimated the desire for feedback for those issues as well ($M = 6.97$, $SD = 3.24$) compared to receivers ($M = 7.78$, $SD = 2.93$), $t(1,078) = -4.26$, $p < .001$, $d = -0.26$.

Relationship Closeness

In a regression analysis that predicted the desire for feedback with role type (giver vs. receiver), relationship closeness (stranger vs. acquaintance vs. close friend), and the interaction between role and relationship closeness as predictors, there were main effects for role ($b = 1.28$, $p < .001$) and relationship type: Compared to a baseline of strangers, the coefficients for acquaintance ($b = .73$, $p = .001$) and close friend ($b = 1.71$, $p < .001$) were significant. However, the interaction terms between relationship type and role were nonsignificant (for acquaintance: $b = .57$, $p = .07$; for close friend: $b = .45$, $p = .15$), suggesting that the underestimation of feedback-givers and -receivers operated similarly regardless of relationship closeness.

Discussion

Across 10 different situations, participants consistently underestimated others' desire for constructive feedback, an effect that was stronger when the potential feedback-recipient's issue seemed more consequential. People were less likely to give feedback than others wanted. The type of relationship that givers and receivers had with each other (close friends, acquaintances, or strangers) did not moderate the effect, suggesting that the underestimation of desire for feedback operates similarly regardless of relationship closeness. These results highlight the generalizability and extent of how much people underestimate others' desire for feedback: The result was statistically significant in eight of the 10 situations tested, with a medium effect size (average $d = .55$; Cohen, 1988).

Moreover, we suspect that this test may have been conservative because the situations were simply imagined; when experiencing such situations in real life, potential givers might be even less likely to provide feedback (as our Pilot Study suggested) and potential receivers may be even more likely to want it (because it would be more consequential). Indeed, it is remarkable that merely asking participants to take the perspective of the giver versus receiver leads them to have such different opinions about the feedback. However, a downside to the hypothetical paradigm employed in Experiment 1 is that various aspects of the situation could change when experienced in reality (e.g., people may experience more embarrassment than they predict upon receiving feedback). To address this, we test the robustness of the results using recalled feedback experiences in Experiments 2 and 4, and live feedback experiences in Experiments 3 and 5.

Experiment 1 also provides support for two possible reasons why people underestimate the desire for feedback: They may be focusing too much on their own potentially negative experience (e.g., anticipating discomfort and relational harm) and/or not fully considering the receiver's potentially positive experience (e.g., failing to recognize the value for the receiver). We continue to explore possible mechanisms for the underestimation of desire for feedback in future studies.

Experiment 2: Recalled Feedback

Experiment 2 tests for the underestimation of desire for feedback in actual experiences and explores our proposed mechanisms for the underestimation. Using a critical incidence technique (Flanagan, 1954), we asked participants to recall feedback scenarios. This allowed us to canvas and examine a variety of real-world situations in which people gave or received feedback or not. By capturing hundreds of real feedback situations from the perspectives of both givers and receivers, the study lends external validity to our effect and underscores how frequently opportunities for potential feedback occur in everyday life. Furthermore, by measuring whether or not the feedback was given, we can test if a potential giver's beliefs about the other person's desire for feedback are associated with their likelihood of actually giving feedback.

Method

We preregistered our hypotheses and analyses at: https://aspredicted.org/ku3rh.pdf.

Participants

We planned to recruit 400 participants, aiming for 100 in each experimental condition to have sufficient statistical power to detect a medium effect size. In total, 403 adults from Prolific Academic ($M_{age} = 32.17$ years, $SD = 11.76$, 55% females) agreed to participate in a study in exchange for $0.96.

Design

We manipulated two conditions (Feedback-Giver vs. Feedback-Receiver) between-participants, randomly assigning participants to either recall an instance when they had the potential to give feedback or to receive feedback. We further measured whether potential givers actually provided feedback or not, and whether potential receivers actually received feedback or not.

Procedure

Participants in the giver/receiver condition read the following:

> For this study, please recall a time when [you witnessed someone do/you did] something important *incorrectly or poorly, without [them] realizing it*. This situation *must have occurred without [that person's/your] knowledge at the beginning*, even if [they/you] later realized what [they/you] had done wrong. For example, the following situations would satisfy these criteria: [Someone was speaking/you spoke] too quickly during a work presentation without realizing it; [Someone was interrupting/you interrupted] a client repeatedly during a meeting without realizing it; [Someone was asking questions in an aggressive way at work without realizing it/Your questions at work sounded aggressive without you meaning it]; [Someone was coming across as rude in their emails without realizing it/You sounded rude in your emails without realizing it]; [Someone was making repeated/you made] errors or typos at work without realizing it. Please take a minute to recall a time when you witnessed something like this.

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Participants wrote a few sentences describing the situations they remembered (see Table 2 for examples). To ensure that participants followed our instructions, givers reported, "Was it possible for you to alert the person to what they did wrong (so they realized what they did)?" and receivers reported, "Was it possible for someone to let you know that you did something or were doing something wrong?" (Yes/No). Participants who answered "No" were asked to generate a new situation and asked the same question after writing the second situation. If they answered "No" again, they were excluded from the analysis, as we preregistered. Four participants answered "no" two times and were excluded from our analysis. Additionally, one participant did not pass the attention check and was excluded from the analysis, as we preregistered. The final number of participants in our analysis was 398.

After writing about the scenarios, participants completed our primary dependent measure of interest: They either predicted the other person's desire for feedback (giver condition) or reported their own desire for feedback (receiver condition) using the same items from Experiment 1. To measure whether the feedback was given or received or not, we asked givers, "Did you tell the person about the situation?" (Yes/No) and receivers, "Did anybody tell you about the situation?" (Yes/No).

To measure potential reasons for the underestimation of the desire for feedback, we asked the same items described in Experiment 1 about considerations about consequences for the self (anticipated discomfort providing feedback, $\alpha = .86$, and expectations about relationship harm, $\alpha = .86$) and considerations about consequences for the receiver (beliefs about receivers' expected discomfort upon getting feedback, $\alpha = .90$, and about receivers' expected value from the feedback, $\alpha = .88$). Participants who did not give or receive feedback were asked to imagine that they had and make predictions using the same items.

At the end of the survey, as control variables, we asked receivers to report the following about the situation they recalled: "How negatively do you think it reflected on you (assuming that you did not realize what you did?)" (0 = *not negative at all*, 10 = *extremely negative*); "How certain are you that the feedback [you received was/imagined receiving would be] useful or constructive?" (0 = *not useful or constructive at all*, 10 = *extremely useful or constructive*); and "To what extent do you think that the feedback [you received helped/you imagined receiving would help] your outcomes?" (0 = *[did/would] not help at all*, 10 = *[extremely helped/would extremely help]*). Givers answered parallel questions from their perspective (e.g., "How negatively do you think it reflects on the person who did it (assuming that person did not realize what they did?)." We also asked givers and receivers to report how well they knew the other person (1 = *the person was a total stranger*, 7 = *the person was a close friend or significant other*) and write optional extra information about the situation (see Supplemental Materials for detail).

Results

Desire to Give and Receive Feedback

Supporting our primary hypothesis, givers believed that potential receivers wanted to be told ($M = 5.43$, $SD = 3.40$) significantly less

Table 2
Example Participant Descriptions From Givers and Receivers Who Either Did or Did Not Provide or Receive Feedback in Experiment 2

Condition	Example participant descriptions
Potential feedback-givers who did not provide feedback	Someone was telling others to do something at work on a Slack channel. However, they didn't realize that it came across in a mean way. They didn't ask politely. All it would have taken was adding a few words to their request.
	Someone was repeatedly interrupting a zoom call due to likely a bad internet connection. They had no idea they kept talking over people. It was embarrassing to watch as the problem kept happening and was not corrected.
Feedback-givers who did provide feedback	I witnessed my immediate supervisor make a comment to an employee that she did not believe was hostile. When I explained how it could be interpreted as so, she immediately regretted saying it. In more detail, an employee had some concerns that she wanted to be addressed. My supervisor listened, but immediately said "is that it?" Employee made a face when responded by that. My supervisor didn't mean any ill will by it, but more so meant that she thought there were more issues that needed to be addressed.
	My pastor was visiting my house. His car would not start and the symptoms were indicative of a failed battery. His wife bought a new battery and I loaned him tools to install the new battery. His car still would not start. I looked at his installation and told him that he had not removed a plastic cap (an insulator) from one of the battery posts. I removed the cap and reconnected the battery cable and the car started.
Potential feedback-receivers who did not receive feedback	Usually with friends when I get passionate about a topic I come off as very aggressive and argumentative. I later feel badly for how I acted.
	I once spoke too quickly during a work presentation which made the information that I was delivering harder to understand.
Feedback-receivers who did receive feedback	I was upset because of something at work related to our weekly schedule. I spoke loudly and rudely to my co-workers and supervisor. I did not realize how I was acting until someone brought it to my attention. I tried from the point on to watch the tone of my voice.
	There was a situation where I made an error in calculating with a typo in a formula in an Excel sheet. I then shared these inaccurate results with my work team. Then they pointed out that the data looked off, and I realized my mistake. It was embarrassing.

than receivers reported actually wanting to be told ($M = 7.28$, $SD = 2.91$), $t(396) = -5.82$, $p < .001$, $d = -0.60$, thereby underestimating receivers' desire for feedback.

In a follow-up 2 (condition: giver or receiver) × 2 (feedback given/received or not) analysis of variance (ANOVA), a significant interaction emerged between condition and whether feedback was given or received, $F(1, 395) = 11.12$, $p = .001$, $\chi^2_p = .025$ (see Figure 4). Givers who chose *not* to give feedback significantly underestimated how much these receivers wanted to be told ($M = 4.40$, $SD = 3.26$) compared to givers who did choose to provide feedback ($M = 5.96$, $SD = 3.34$), $t(193) = -3.08$, $p = .002$, $d = -0.47$. This result suggests a potential consequence for the underestimation of feedback: Givers who more severely underestimate receivers' desire for feedback may also be less likely to actually give feedback. Receivers, on the other hand, wanted feedback just as much whether they were told ($M = 7.50$, $SD = 2.84$) or not ($M = 6.96$, $SD = 2.98$), $t(201) = 1.30$, $p = .19$, $d = 0.19$.

Potential Mechanisms: Considerations About Consequences of Feedback for Self and Others

To test which of givers' experiences or predictions are most closely aligned with their beliefs about receivers' desire for feedback, we conducted a regression model with givers' predictions about receivers' desire for feedback as the outcome variable, and givers' beliefs about their anticipated discomfort, receivers' discomfort, the potential for relationship harm, and the value of the feedback to the receiver as predictor variables. Results demonstrated that givers' expectations about relationship harm was a significant predictor of givers' predictions about receivers' desire for feedback ($b = -.43$, $p = .001$) as were givers' beliefs about receivers' value for the feedback ($b = .54$, $p < .001$) and givers' beliefs about receivers' discomfort ($b = -.25$, $p < .01$), providing evidence for Hypotheses 3, 5a, and 4a, respectively. We did not find evidence for Hypothesis 2, as givers' discomfort providing feedback was not a significant predictor.[7]

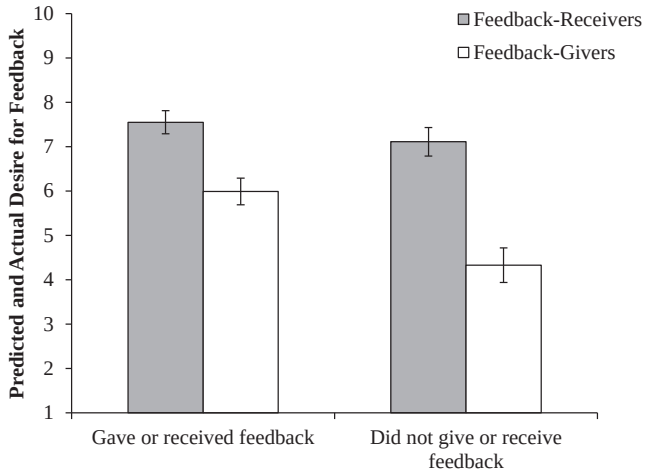
We further tested for other giver/receiver discrepancies in predicted receiver experiences (testing Hypotheses 4b and 5b). Unlike in Experiment 1, givers *underestimated* how uncomfortable it would be for receivers to get feedback ($M = 4.40$, $SD = 2.57$) compared to receivers' own predictions or reports ($M = 5.48$, $SD = 2.57$), $t(397) = -4.11$, $p < .001$, $d = -0.41$. Givers also underestimated how much the receivers would value receiving feedback ($M = 6.17$, $SD = 2.43$) compared to receivers' predictions or reports ($M = 7.35$, $SD = 2.48$), $t(396) = -4.60$, $p < .001$, $d = -0.46$.

To test Hypothesis 5c, we tested whether givers' underestimation of receiver value significantly mediated their underestimation of receivers' desire for the feedback.[8] In a bootstrap mediation model (10,000 iterations) that included role condition as the independent variable, predictions and reports of receiver value as a potential mediator, and desire for feedback as the dependent variable, a significant indirect effect emerged for receiver value (indirect effect = −.97, 95% CI [−.60, −1.37], $p < .001$). Thus, we find support for Hypothesis 5c.

Finally, we examined whether our control variables affected wanting to give or receive feedback. Controlling for how negatively the situation reflected on the target person, how useful or constructive they expected the feedback to be, how helpful the feedback would be to the target person's outcomes, and how well the participants knew the other person, the effect of giver/receiver condition on the desire for feedback remained, $b = -2.25$, $p < .001$. Moreover, two of the control variables significantly moderated the effect of condition (how negatively the situation reflects on the person: $b = -.34$, $p < .001$; how useful the feedback would be: $b = .29$, $p = .010$) such that givers' underestimation of receivers' desire for feedback *increased* (i.e., givers expected lower desire for feedback, becoming less accurate) when givers felt the feedback reflected badly on the receiver and *decreased* (i.e., givers expected more desire for feedback, becoming more accurate) when givers believed the feedback would be useful. The other interactions were statistically weaker (how helpful the feedback would be: $b = .19$, $p = .078$; how well the giver knew the receiver: $b = .30$, $p = .09$).

Figure 4

Predicted and Actual Desire for Constructive Feedback in Experiment 2



Note. This figure shows predicted and actual desire for constructive feedback, by potential and actual feedback-givers and feedback-receivers, for situations in which they gave or received feedback or not in Experiment 2. Givers who did not provide feedback to a potential receiver especially underestimated receivers' desire for feedback. Error bars represent 95% confidence intervals.

Discussion

Experiment 2 provides further evidence for our hypothesis that givers underestimate how much receivers want to receive constructive feedback. Importantly, the design of the experiment (in which participants recalled their actual or potential feedback experiences) allowed us to preserve the dynamic of the myriad relational and status differences that exist between a potential feedback-giver and -receiver. Participants recalled a variety of situations that occurred with

[7] We did not replicate our Experiment 1 finding that givers' own discomfort predicted their underestimation of receivers' desire for feedback. One possible reason for the lack of replication is that givers may not have accurately recalled their discomfort in this paradigm. Our live feedback Experiments 3 and 5 allow us to examine actual feelings of discomfort as opposed to recalled feelings.

[8] We did not test Hypothesis 4c because, unlike in Experiment 1, we did not find evidence that givers overestimated receivers' discomfort.

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friends, family members, subordinates, bosses, peers, and strangers. Replicating the giver–receiver gap with a large variety of contexts (e.g., personal and professional) and relationships lends further external validity to our findings. Moreover, 99% of participants were able to remember and vividly describe a feedback incident that fit our criteria, regardless of their assignment to giver or receiver condition, highlighting how common these occurrences are in everyday life. Importantly, this experiment suggests a consequence of the underestimation of desire for feedback: Givers who more strongly underestimated the desire for feedback were less likely to have given feedback compared to givers who were more accurate in estimating the desire for feedback.

This experiment again suggests two possible reasons for why people underestimate the desire for feedback: They may be focusing too much on their own experience (of discomfort and anticipated relational harm) and/or not fully considering the receiver's experience (e.g., how much value they could get from the feedback). It also highlights several possible moderators of the difference between givers' predictions and receivers' reports of the desire for feedback: Givers' underestimation of receivers' desire for feedback was larger when they presumed that the feedback could reflect negatively on the receiver, and smaller when givers thought the feedback would be useful. As in Experiment 1, we found that the relationship closeness between the giver and receiver did not have a strong impact on givers' underestimations.

A final contribution of this experiment is additional insight into whether the giver–receiver divergence is due to givers' inaccuracy in judging receivers' true preferences or receivers misunderstanding their own preferences. Receivers' reports of their desire for feedback when they received it did not differ from their predicted desire for feedback when they did not, suggesting that their predictions are accurate—and that givers' predictions may be less accurate. Moreover, because receivers recalled their desire for feedback for something that happened in the past, it is unlikely that receivers were overreporting their desire for feedback due to social desirability concerns.

Experiment 3: Feedback for Close Others

Experiment 3 tests the extent of givers' underestimation of others' desire for feedback in a real feedback interaction between close others. People participated in a virtual laboratory experiment with a friend, roommate, or romantic partner. We assigned one member of each pair to be the feedback-giver—generating real feedback that they genuinely wanted to share with their partner—and the other to be the receiver. Participants first predicted how they would feel giving or receiving feedback, then had the feedback interaction, and finally reported how giving or receiving the feedback actually felt. By collecting reports both before and after the feedback interaction, Experiment 3 provides a test of whether givers' and receivers' predictions about their experiences differ from what they actually experience. As in previous studies, we additionally test whether the giver–receiver gap is mediated by givers' considerations about consequences for themselves or the other person.

Method

We preregistered our hypotheses and analyses at https://aspredicted.org/gk44w.pdf.

Participants

Participants signed up for the study in pairs. In order to participate, the individuals in each pair had to be friends, roommates, or romantic partners. We planned to recruit 100 participants, aiming for 50 in each experimental condition to have sufficient statistical power to detect a medium effect size. In total, 100 students (50 pairs) from a west coast university (M_{age} = 21.09, SD = 4.19; 60% females) agreed to participate in an online Zoom experiment in exchange for a $10 electronic gift card.

Design

The experiment design was two conditions (Feedback-Giver vs. Feedback-Receiver) between-participants.

Procedure

The experimenter randomly assigned one of the participants in each pair to be the giver and the other to be the receiver. Participants were given their instructions separately in a private Zoom chat message.

Givers' instructions: *Please brainstorm something that you would like to give your partner constructive feedback on (ideally something you haven't discussed before). As the next step in this study, you are going to give your partner this feedback. You will have up to 10 min to have a conversation about the feedback you provide. The feedback should be constructive. Constructive feedback is telling someone something specific and actionable that he or she could change, with that person's well-being in mind. For example: "You may not realize that sometimes you are texting other people while we're hanging out, and others can see it and feel like you're not prioritizing them. So maybe you could do that less."*

Givers then provided the experimenter with a two—three word phrase to explain the topic of their feedback (e.g., from the example earlier, it could be "texting too much").

Receivers' instructions: *"In the next step of this study, your partner is going to give you constructive feedback on [Feedback-Givers' 2–3-word phrase explaining the feedback topic]. You will have up to 10 min to have a conversation about the feedback they provide."*

After receiving these instructions, participants completed the *presurvey*. Next, the givers gave their feedback to the receivers, and the pair had up to 10 min to discuss the feedback (see Table 3 for examples of feedback given). Finally, both participants completed the *postsurvey*.

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Table 3
Representative Examples of Feedback Given by Feedback-Givers to Feedback-Receivers

Examples
Taking too long to get ready
Being too private
Putting away laundry
Being more open minded
Being more present
Working less
Following through with plans
Being on their phone too much
Driving a recklessly
Lack of focus
Not exercising enough
Going to bed earlier
Better time management skills
Doing dishes sooner

Materials (Surveys)

Closeness Check

To make sure the two participants in each pair knew each other, we asked, "How close are you to the other person?" (1 = *not close at all*, 7 = *extremely close*) and "How well do you know the other person?" (1 = *not well at all*, 7 = *extremely well*).

Presurvey

We first asked participants to report their desire to give (in the giver condition) or receive (in the receiver condition) feedback with a dichotomous measure: "If you had a choice to give [get] feedback or not, what would you pick?" (*Prefer to give [get] feedback; Prefer not to give [get] feedback*). Then, givers predicted [and receivers reported] the receivers' desire for feedback with the following item: "How much do you think the other person wants to get feedback from you? [How much do you want to get feedback from the other person]?" (0 = *not at all*, 10 = *very much*). Givers also reported [and receivers predicted] their desire to give feedback: "How much do you want to give feedback to the other person? [How much do you think the other person wants to give feedback to you?]" (0 = *not at all*, 10 = *very much*).

To measure potential reasons for the hypothesized underestimation of the desire for feedback, we asked the same items described in Experiments 1 and 2 about considerations about consequences for the self (anticipated discomfort providing feedback, $\alpha = .87$, and expectations about relationship harm, $\alpha = .75$) and considerations about consequences for the receiver (beliefs about receivers' discomfort upon getting feedback, $\alpha = .87$, and receivers' value for the feedback, $\alpha = .78$).

Postsurvey

Using the same items in the presurvey (but modified to reflect that the feedback interaction had already happened), participants again answered questions about considerations about consequences for the self (anticipated discomfort providing feedback, $\alpha = .89$, and expectations about relationship harm, $\alpha = .80$) and considerations about consequences for the receiver (beliefs about receivers' discomfort upon getting feedback, $\alpha = .90$, and receivers' value for the feedback, $\alpha = .92$).

Results

Closeness Check

Supporting our recruitment efforts, participants indicated that they knew each other well ($M = 6.11$ out of 7, $SD = 1.31$) and that they were close to each other ($M = 6.21$ out of 7, $SD = 1.20$).

Desire to Give and Receive Feedback

Replicating our results from prior experiments and supporting our primary Hypothesis (H1), givers believed that receivers wanted to receive feedback less ($M = 5.18$, $SD = 2.20$) than receivers reported wanting to receive it ($M = 6.98$, $SD = 2.08$), paired $t(49) = -4.23$, $p < .001$, $d = -.84$, thereby underestimating receivers' desire for feedback.

We also asked givers and receivers a binary choice question: If they had a choice to give/receive feedback or not, what they would choose? Receivers overwhelmingly (86%) chose to receive feedback, whereas significantly fewer givers (48%) chose to give feedback, $\chi^2(1, N = 100) = 11.97$, $p < .001$.

Potential Mechanisms: Considerations About Consequences of Feedback for Self and Others

To test which of givers' experiences or predictions are most closely aligned with their beliefs about receivers' desire for feedback, we conducted a regression model with givers' predictions about receivers' desire for feedback as the outcome variable, and givers' beliefs about their anticipated discomfort, receivers' discomfort, the potential for relationship harm, and the value of the feedback to the receiver as predictor variables. Results demonstrated that givers' beliefs about receivers' value for the feedback was a significant predictor of givers' predictions about receivers' desire for feedback ($b = .73$, $p < .001$) as was givers' predictions of their own discomfort ($b = -.40$, $p < .01$), providing support for Hypotheses 5a and 2. We did not find support for Hypotheses 4a and 3 as givers' beliefs about receiver discomfort and relationship harm were not significant predictors.

We further tested for other giver/receiver discrepancies in predicted receiver experiences (testing Hypotheses 4b and 5b). There was no difference between givers' and receivers' estimations of how uncomfortable receiving feedback would be for receivers, in either the presurvey ($p = .42$) or the postsurvey ($p = .40$). However, givers underestimated ($M = 5.83$, $SD = 1.65$) how much the receivers would value receiving feedback in the presurvey ($M = 7.09$, $SD = 1.63$), paired $t(49) = -4.64$, $p < .001$, $d = -0.77$, and also in the postsurvey (givers: $M = 5.45$, $SD = 1.93$; receivers: $M = 6.61$, $SD = 2.58$), paired $t(49) = -3.18$, $p = .003$, $d = -0.51$. Indeed, there was no shift in givers' predicted value before and after giving feedback, $p = .16$, and receivers found the feedback to be nonsignificantly but directionally more valuable than they expected, paired $t(49) = 1.72$, $p = .09$, $d = 0.22$.

To test Hypothesis 5c, we tested whether givers' underestimation of receiver value significantly mediated their underestimation of receivers' desire for the feedback. In a bootstrap mediation model

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(10,000 iterations) that included role condition as the independent variable, predictions and reports of receiver value as a potential mediator, and desire for feedback as the dependent variable, a significant indirect effect emerged for receiver value (indirect effect = .60, 95% CI [.23, .99], $p < .001$). Thus, we found support for Hypothesis 5c.

Discussion

In a laboratory experiment involving real and consequential feedback, with participants recruited in pairs who knew each other well, we demonstrate our hypothesized effect: Givers again underestimated receivers' desire for feedback. Notably, the effect size in this experiment which tested a real feedback situation ($d = -0.84$) was even larger than in Experiment 1 which tested hypothetical scenarios ($d = -0.49$) and in Experiment 2 which tested recalled feedback ($d = -0.30$), suggesting that our online studies were conservative tests of the hypothesis.

Experiment 3 also provides evidence that givers' estimations about receiver desire for feedback are predicted by givers' beliefs about receivers' value for the feedback and givers' predictions of their own discomfort. Notably, givers' underestimation of receivers' value of feedback also mediated their underestimation of receivers' desire for feedback. We did not replicate the finding from Experiments 1 and 2 that relationship harm predicts givers' estimations of receiver desire for feedback nor did we find evidence that givers' overestimation of receiver discomfort mediates the feedback gap (consistent with Experiment 2). One possible explanation for these null results is that pairs were close to one another and thus may have been less concerned with relational harm and more knowledgeable about each other's discomfort levels.

One useful aspect of Experiment 3 is that participants were surveyed before and after the feedback interaction. Receivers' estimations of how much discomfort they would feel and how much they would value the feedback did not change meaningfully from before to after the interaction, suggesting their expectations were aligned with reality. Givers, however, underestimated how much receivers valued the feedback both before the interaction as well as after the interaction, suggesting that givers do not correct their misprediction over the course of the interaction.

Experiment 4: Making Givers Recognize Receivers' Desire for Feedback

Experiment 4 aimed to test potential interventions to help reduce the underestimation of receivers' desire for feedback demonstrated by givers in Experiments 1–3. We first sought to replicate our primary Hypothesis (H1) that receivers' reports of their desire for feedback are higher than givers' predictions when givers do not receive an intervention ("control" givers). Next, we tested two potential interventions, one aimed at reducing giver discomfort by asking givers to imagine that someone else gave the feedback, and a second designed to promote perspective-taking by asking givers to simulate what it would be like to receive feedback themselves.[9] We explored which intervention leads to more accurate estimates of receivers' desire for feedback, although we expected both to improve accuracy compared to the no-intervention control condition.

Method

We preregistered our hypotheses and analyses at: https://aspredicted.org/ad8w9.pdf.

Participants

We planned to recruit 600 participants, aiming for 150 participants in each experimental condition to have sufficient statistical power to detect a medium effect size. In total, 600 adults from Prolific Academic ($M_{age} = 34.06$ years, $SD = 13.33$, 47% females) agreed to participate in a study in exchange for $1.70.

Design

We randomly assigned participants to one of four conditions: one Feedback-Receiver condition and three Feedback-Giver conditions (Control, Perspective-Taking, and Low-Discomfort conditions). The givers in the control condition and the receivers were given the same instructions as in Experiment 2, whereas the givers in the perspective-taking and low-discomfort conditions received new instructions described below. Receivers recalled a time when they did something important incorrectly or poorly without realizing it. Givers in all three giver conditions recalled a time when they observed someone else experiencing this kind of situation. Givers in the perspective-taking condition were additionally asked to complete a perspective-taking exercise, and givers in the low-discomfort condition were asked to imagine that somebody else in the situation gave feedback (details below). Unlike in Experiment 2, all receivers and givers were instructed to recall a time when no one told them about the situation or when they did not tell the other person about the situation, respectively. We implemented this change because our low-discomfort intervention asked participants to imagine that someone else gave feedback, and we did not want this hypothetical exercise to be influenced by what may have happened if feedback had actually been given.

Procedure

Participants in the giver [receiver] conditions read the following:

> For this study, please recall a time when you witnessed someone do [you did] something important incorrectly or poorly, without realizing it. It must be a time when it was possible for you to let the person know [someone to let you know] that they [you] were doing something incorrectly, but you did not tell them [no one told you]. The situation must have occurred without that person's [your] knowledge at the beginning, even if they [you] later realized what they [you] had done wrong. For example, the following situations would satisfy these criteria: Someone was [you were] speaking too quickly during a work presentation without realizing it; Someone [you] interrupted a client several times during a meeting without realizing it; Someone's [your] questions at work were sounding aggressive without them [you] meaning it; Someone [you] sounded rude in their [your] emails without realizing it; Someone was [you were] making repeated errors or typos at work without realizing it. Please take a minute to recall a time when something like this happened.

[9] We do not test considerations about relationship harm in this experiment because those considerations are irrelevant in the low-discomfort intervention, in which we asked participants to imagine that someone else gave the feedback.

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Participants wrote a few sentences describing the situations they remembered. To ensure that participants followed our instructions, givers [receivers] reported, "In this situation, was it possible for you [someone] to let the person [you] know that they [you] were doing something incorrectly or poorly" (Yes/No), and, "In this situation, did you [someone] let the person [you] know that they [you] were doing something incorrectly or poorly?" (Yes/No). Participants who answered "No" to the first question or "Yes" to the second were asked to generate a new situation, and they were asked the same question after writing the second situation. If their answers again indicated that they did not follow instructions, they were excluded from the analysis. Thirty-nine participants were excluded from our analysis due to not following instructions, and the total number of participants included in our analysis was 561.

Then, givers in the perspective-taking condition completed a perspective-taking exercise with the following instructions:

> Now, please imagine that you were in the situation that you just described. So, instead of you noticing someone else doing something wrong without realizing it, it was actually you doing the same thing wrong without realizing it. Please take a minute to imagine how you would feel if it were you in this situation. Write down everything that crosses your mind.

They completed the following prompt, "If I were in this situation, I would feel ... " (free-response). Before answering the main dependent variables, they were also asked to answer the following questions about how they would feel if they were in the situation: "If you were in the situation, how much do you think you would have wanted someone to tell you about the situation?" (0 = *I would definitely not want to be told*, 10 = *I would definitely want to be told*); "If you were in the situation, how valuable do you think it would have been for you to know about the situation?" (0 = *not at all valuable*, 10 = *very valuable*); "If you were in the situation, how much do you think that knowing about the situation would have helped you?" (0 = *not at all helpful*, 10 = *very helpful*); and "If you were in the situation, how grateful do you think you would have been that someone told you about the situation?" (0 = *not at all grateful*, 10 = *very grateful*).

Meanwhile, givers in the low-discomfort condition were asked to imagine that someone else (rather than themselves) provided feedback to the other person. Specifically, they read the following instructions:

> Let's refer to the person who was doing something incorrectly or poorly as "Person A." Now, please imagine that someone else ("Person B") told Person A that they were doing something incorrectly or poorly. Person B decided to give Person A feedback because they realized Person A was unaware of what they were doing. Person B knows Person A just as well as you do. You are not the person that gives feedback about the situation—you are not involved in the conversation. However, you know that Person B gave Person A feedback because Person B told you. You are not in the room when Person B gives Person A feedback.

Then, participants completed the dependent variables while imagining this situation in which "Person B" gave "Person A" feedback.

Survey. We used the same questions from Experiments 1–3 to measure desire for feedback for participants in the control giver and receiver conditions. Givers and receivers were asked to answer these questions after imagining that they told the other person or that someone told them about the situation, respectively. The questions were slightly modified for the perspective-taking and low-discomfort giver conditions.[10] Using the same items as Experiments 1–3, participants again answered questions about considerations about consequences for the self (anticipated discomfort providing feedback, $\alpha = .89$) and considerations about consequences for the receiver (beliefs about receivers' discomfort upon getting feedback, $\alpha = .90$, and receivers' value for the feedback, $\alpha = .83$).

Manipulation Checks. After reporting the main dependent variable of desire for feedback, participants from all three giver conditions completed two manipulation checks. To assess whether givers in the perspective-taking condition engaged in more perspective-taking, we asked them, "While you were just predicting how much the other person wanted to be told, to what extent did you imagine how you would feel if you were in the other person's position?" (0 = *I didn't try to imagine how I would feel in their position*, 10 = *I very much tried to imagine how I would feel in their position*). To assess whether givers in the low-discomfort condition focused less on their own discomfort, we asked them,

> While you were just predicting how much the other person wanted to be told, to what extent did you think that knowing Person B told Person A about the situation (while you were not there) would be an uncomfortable experience for you? (0 = *It would not be uncomfortable at all*, 10 = *It would have been very uncomfortable for me*).

We asked givers in the perspective-taking and control conditions, "While you were just predicting how much the other person wanted to be told, to what extent did you think that telling the other person about the situation would be an uncomfortable experience for you?" (0 = *It would not be uncomfortable at all*, 10 = *It would have been very uncomfortable for me*).

Control Measures. Finally, at the end of the study, we asked givers in the control and perspective-taking conditions [and receivers] to rate the following three control measures: "For the situation you recalled, how negatively do you think it reflects on the person in the situation [you] (assuming that they [you] did not realize what they [you] did)?" (0 = *not negatively at all*, 10 = *extremely negatively*); "To what extent was the feedback you imagined giving [receiving] constructive?" (0 = *not constructive at all*, 10 = *extremely constructive*); and "To what extent would the feedback you imagined giving [receiving] have helped the person's [your] outcomes?" (0 = *did not help at all*, 10 = *extremely helped*). Givers in the low-discomfort condition rated the same three control measures with different wording to ask about "Person A" and "Person B."

Results

Manipulation Checks

As intended, givers in the low-discomfort condition ($M = 4.45$, $SD = 2.98$) anticipated significantly less discomfort than givers in

[10] In the perspective-taking condition, participants imagined that they told the other person. They completed the main dependent variable and mechanism questions after a reminder to remember how they would feel if they were in the situation. In the low-discomfort condition, participants completed the main dependent variable and mechanism questions while continuing to imagine that someone else ("Person B") told the person ("Person A") about the situation. They reported their own discomfort, despite imagining someone else giving the feedback.

the control condition ($M = 6.91$, $SD = 2.89$) and givers in the perspective-taking condition ($M = 6.31$, $SD = 2.83$), $t(281) = -7.05$, $p < .001$, $d = -.84$ and $t(286) = -5.46$, $p < .001$, $d = -.64$, respectively.[11] Further, givers in the perspective-taking condition reported that they engaged in more perspective-taking ($M = 7.07$, $SD = 2.76$) than givers in the control condition ($M = 5.72$, $SD = 3.10$), $t(283) = 3.88$, $p < .001$, $d = .46$, and directionally, albeit nonsignificantly, than givers in the low-discomfort condition ($M = 6.73$, $SD = 2.88$), $t(286) = 1.03$, $p = .30$, $d = .12$.[12]

Desire to Give and Receive Feedback

Replicating our results from prior experiments and supporting our primary Hypothesis (H1), givers in the control condition believed that receivers wanted to be told less ($M = 4.21$, $SD = 3.08$) than receivers reported wanting to be told ($M = 7.80$, $SD = 2.75$), $t(271) = -10.13$, $p < .001$, $d = -1.23$, thereby underestimating receivers' desire for feedback. Supporting our additional preregistered hypotheses, givers in the two intervention conditions, the perspective-taking condition ($M = 5.75$, $SD = 2.68$) and the low-discomfort condition ($M = 5.06$, $SD = 2.88$), believed that receivers wanted to be told *more* compared to givers in the control condition ($M = 4.21$, $SD = 3.08$), $t(283) = 4.50$, $p < .001$, $d = .53$ and $t(281) = 2.37$, $p < .018$, $d = .28$, respectively. Despite the fact that givers in both intervention conditions were more accurate (i.e., closer to receivers' reports), givers in the low-discomfort and perspective-taking conditions still underestimated receivers' desire for feedback, $t(274) = -8.10$, $p < .001$, $d = -.97$, and $t(276) = -6.30$, $p < .001$, $d = -.76$, respectively. When comparing the two intervention conditions, we found that givers in the perspective-taking condition were more accurate in predicting receivers' desire for feedback (closer to receivers' actual reported desire for feedback) than givers in the low-discomfort condition, $t(286) = 2.12$, $p = .035$, $d = .24$ (see Figure 5).

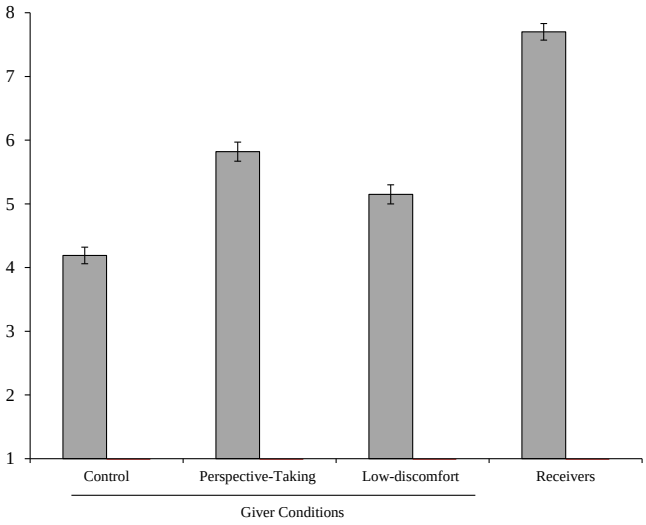
Potential Mechanisms: Considerations About Consequences of Feedback for Self and Others

To test which of givers' experiences or predictions are most closely aligned with their beliefs about receivers' desire for feedback, we conducted a regression model with givers' predictions about receivers' desire for feedback as the outcome variable, and givers' beliefs about their anticipated discomfort, receivers' discomfort, the potential for relationship harm, and the value of the feedback to the receiver as predictor variables.[13] Results demonstrated that givers' beliefs about receivers' value for the feedback significantly predicted givers' predictions about receivers' desire for feedback ($b = .75$, $p < .001$), supporting Hypothesis 5a. We did not find support for Hypotheses 4a and 2 as givers' beliefs about receiver discomfort and givers' predictions of their own discomfort were not significant predictors (ps = .37 and .11, respectively).

We further tested for other giver/receiver discrepancies in predicted receiver experiences (testing Hypotheses 4b and 5b). All three giver conditions overestimated how uncomfortable receiving feedback would be for receivers (ps < .004, ds > .39). However, there were no significant differences between the three giver conditions in predicting receiver discomfort (ps > .53). Turning to receiver value, all three giver conditions underestimated how much receivers ($M = 8.22$, $SD = 1.85$) would value receiving feedback (ps < .001, ds < −.76). When comparing giver conditions to each other, we find the same pattern as our main effect. Both givers in the perspective-taking condition ($M = 6.80$, $SD = 1.88$) and givers in the low-discomfort condition ($M = 6.32$, $SD = 2.08$) made predictions significantly closer to receivers' reports of value from feedback compared to the predictions of givers in the control condition ($M = 5.68$, $SD = 2.38$), $t(283) = 4.42$, $p < .001$, $d = .51$ and $t(281) = 2.41$, $p = .016$, $d = .29$, respectively. But the predictions of givers in the perspective-taking condition were more accurate (i.e., closer to receiver reports) than those of givers in the low-discomfort condition, $t(286) = 2.06$, $p = .041$, $d = .24$.

Figure 5

Predicted and Actual Desire for Constructive Feedback in Experiment 4



Note. This figure shows receivers' actual desire for feedback compared to givers' beliefs about their desire for feedback in three conditions: the control condition, the perspective-taking condition, and the low-discomfort condition. Both the perspective-taking and low-discomfort conditions led to more accurate predictions of receiver desire for feedback, with perspective-taking producing the most accuracy. Error bars represent 95% confidence intervals. See the online article for the color version of this figure.

Mediation

To test Hypotheses 4c and 5c, we tested whether givers' overestimation of receiver discomfort and underestimation of receiver

[11] Givers in the control condition predicted nonsignificantly more discomfort than givers in the perspective-taking condition, $t(283) = 1.77$, $p = .079$, $d = .21$, suggesting that something about perspective-taking might make givers less focused on their own discomfort.

[12] Givers in the low-discomfort condition reported more perspective-taking than givers in the control condition, $t(281) = 2.83$, $p < .01$, $d = .34$, suggesting that, by taking themselves out of the situation, the low-discomfort givers may have been better able to empathize with receivers' perspectives.

[13] Note that we do not test Hypothesis 3 that givers' estimation of relationship harm will predict their estimation of receivers' desire for feedback. We did not collect predictions of relationship harm in this study because one of the intervention conditions asks givers to imagine someone else is giving feedback.

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value significantly mediated their underestimation of receivers' desire for the feedback. We tested three bootstrap simultaneous mediation models (10,000 iterations) that included condition (either: 1—Control Giver vs. Receiver, 2—Perspective-taking Giver vs. Receiver, or 3—Low-discomfort Giver vs. Receiver) as the independent variable, predictions and reports of receiver value and receiver discomfort as two mediators, and desire for feedback as the dependent variable. For givers in the control condition vs. receivers, a significant indirect effect emerged for receiver value ($b[indirect] = 2.03$, $z = 7.87$, $p < .001$) and receiver discomfort ($b[indirect] = 0.16$, $z = 2.17$, $p = .030$) as mediators. For givers in the perspective-taking condition versus receivers, a significant indirect effect emerged for receiver value ($b[indirect] = 1.21$, $z = 5.46$, $p < .001$) but the indirect effect for receiver discomfort did not reach statistical significance ($b[indirect] = 0.11$, $z = 1.89$, $p = .058$). Finally, for givers in the low-discomfort condition versus receivers, a significant indirect effect emerged for receiver value ($b[indirect] = 1.51$, $z = 6.52$, $p < .001$) and for receiver discomfort ($b[indirect] = 0.14$, $z = 2.12$, $p = .034$) as mediators. In all three models, the discrepancy between predicted and actual receiver value was a much stronger mediator than the discrepancy between predicted and actual receiver discomfort. Thus, we found support for both Hypotheses 4c and 5c, but we found stronger support for Hypothesis 5c (replicating the pattern of findings in Experiment 1).

Control Variables

Finally, we examined whether our control variables affected wanting to give or receive feedback. Controlling for how negatively the situation reflected on the target person, how constructive they expected the feedback to be, and how helpful the feedback would be to the target person's outcomes, the effect of giver/receiver condition on the desire for feedback remained, $bs < -1.56$, $ps < .001$. Moreover, each of the three control variables moderated the effect of condition; givers' underestimation of receivers' desire for feedback *increased* when givers felt the interaction reflected badly on the receiver ($b = .27$, $p = .020$) and *decreased* when givers believed their feedback was more constructive ($b = -.34$, $p = .022$) or more helpful to the receiver ($b = -.33$, $p = .013$).

Discussion

Experiment 4 provides further evidence that givers underestimate how much receivers want to receive constructive feedback. Moreover, Experiment 4 develops and tests two possible interventions to reduce this underestimation. One intervention asked participants to take the perspective of the receiver before predicting receivers' desire for feedback, testing whether enhancing givers' consideration of the receiver's experience can make givers more accurate about receivers' desire for feedback.[14] A second intervention asked givers to imagine someone else giving the receiver feedback before predicting receiver desire for feedback, testing whether reducing their consideration of their own experience (e.g., their expected discomfort) can make them more accurate about receivers' desire for feedback. We found that both interventions led to more accurate predictions of receiver desire for feedback compared to a no-intervention control condition, suggesting that the underestimation of desire for feedback is multiply determined. However, the predictions of perspective-taking givers were significantly more accurate than those of the low-discomfort givers, suggesting that givers' inaccuracy may be due more to not attending enough to receivers' experience than attending too much to their own experience.

Experiment 5: Getting Feedback in a Public-Speaking Competition

In Experiment 5, givers provided live and immediately consequential feedback to receivers in a financially incentivized public-speaking competition. Our goal was to explore whether givers' underestimation of receivers' desire for feedback had consequences for receivers' public-speaking performance and financial payoffs. We chose a public-speaking task as a context where feedback would likely be useful, and we incentivized the winners of the competition with a $50 gift card in order to raise the stakes and make the feedback more consequential.

As in Experiments 1–4, we tested whether givers would underestimate how much receivers want to receive feedback and whether this gap would be mediated by givers' considerations about consequences for themselves (i.e., their own discomfort and anticipated harm to the relationship) and their considerations about consequences for the receiver (i.e., the value of the feedback to the receivers and receivers' discomfort). To test whether the amount of constructive feedback that givers provided correlated with receivers' improvement from practice to final speech, independent raters blind to hypotheses coded the extent to which the feedback was constructive and rated receivers' practice speeches and final speeches.

Another goal of this study was to compare predictions about desire for feedback with actual experiences of giving and receiving feedback. To this end, we surveyed participants at three time points: at the beginning of the study (first presurvey), after the practice speech but before feedback was given (second presurvey), and after feedback and the final speech were given (postsurvey).

Method

We preregistered our hypotheses and analyses at: https://aspredicted.org/q754m.pdf.

Participants

We planned to recruit 200 participants, aiming for 100 in each experimental condition to have sufficient statistical power to detect a medium effect size. In total, 204 students from a west coast university ($M_{age} = 21.6$, $SD = 4.16$; 70% females) agreed to participate in an in-person laboratory experiment in exchange for $10.

[14] Perspective-taking does not always increase accuracy in interpersonal judgments (Eyal et al., 2018), partially because in some situations, it is difficult or impossible to imagine another person's perspective (e.g., imagining oneself as belonging to a different racial group). However, the perspective-taking intervention in this study shifted givers' focus to an experience they could understand because everyone has received feedback in their life. Moreover, rather than simply asking participants to imagine a receiver's experience, we asked them how they would react if they personally received feedback, putting them more explicitly into the other role and making the manipulation stronger.

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Design

The experiment design was two conditions (Feedback-Giver vs. Feedback-Receiver) between-participants.

Procedure

Participants were recruited to the lab in pairs. The experimenter explained to both participants that one of them would be assigned to give a speech (receiver), and the other would be assigned to give feedback on the speech to the speaker (giver). The procedure that the experimenter described was that first, the receiver would make a practice speech, then, the giver would give the receiver feedback on their practice speech, and finally, the receiver would make a final speech that would be "evaluated and scored by members of the research team." Both the practice speech and the final speech would be video recorded and "the person with the highest final speech score at the end of the study will be emailed an electronic Amazon gift card for $50." For details on how the research team measured performance and coded the feedback, see the section on Performance and Feedback Coding below.

Before participants learned which of them was assigned to be the giver and which the receiver, both participants spent 10 min separately writing a 3-min speech about how to succeed in college. After writing their speeches, participants received their role assignments to be either the receiver or the giver. The receiver learned that they would have 5 min to make a practice video recording of their speech, and during this time, the giver would listen to the practice speech and take detailed notes using a feedback guide (see Supplemental Materials) which included five categories: (a) Verbal disfluencies (e.g., "um," "ah"); (b) Eye contact and facial expressions; (c) Hand motions, body language, and gesturing; (d) Demeanor and attitude (confidence); and (e) Rate of speaking and breathing. We included this feedback guide to ensure there would be an adequate amount of feedback provided by the giver to the receiver and also to standardize the type of feedback provided. The experimenter told givers that their job was to provide feedback to their partner to make their speech better, and that if the receiver won the speech competition, they would receive $25 (see Supplemental Materials for full instructions).

After receiving the instructions, participants completed the *first presurvey*. Next, the receivers completed their practice speech (video recorded) while givers wrote feedback on the speech, following the feedback guide. Prior to receiving or giving feedback, participants completed the *second presurvey* to test whether participants' preferences would change just before receiving or providing feedback. After completing the second survey, givers provided receivers with feedback in each of the five categories in the feedback guide. We audio recorded the feedback so that we could code how much and what type of feedback the giver provided. The receivers then gave their final speech on video tape. Finally, both participants completed the final *postsurvey*.

Materials (Surveys)

First Presurvey

To test our primary hypothesis, we asked participants to report receivers' desire for feedback: "How much do you think the other person wants to get feedback from you?" (givers) or "How much do you want to get feedback from the other person?" (receivers; 1 = *not at all*, 10 = *very much*).[15]

To measure potential reasons for givers' underestimation of receivers' desire for feedback, we asked items similar to those described in Experiments 1–4 about considerations about consequences for the self (anticipated discomfort providing feedback, α = .87, and expectations about relationship harm, α = .50) and considerations about consequences for the receiver (beliefs about receivers' discomfort upon getting feedback, α = .84, and receivers' value for the feedback, α = .92). For the exact text of each question, see the Supplemental Materials.

Second Presurvey

Using the same items as the first presurvey, we again collected participants' predicted and actual *desire for receiving feedback.*

Postsurvey

Like in the first presurvey, participants again predicted or reported their considerations about consequences for themselves (anticipated discomfort providing feedback, α = .86, and expectations about relationship harm, α = .76) and considerations about consequences for the receiver (receivers' discomfort upon getting feedback, α = .86, and receivers' value for the feedback, α = .89), albeit written in past tense.[16] We did not ask participants about the desire for feedback after the feedback was given.

Across the pre- and postsurveys, we asked several exploratory questions to receivers and givers, which we report in the Supplemental Materials.

Performance and Feedback Coding

We preregistered our hypotheses and analyses for coding participants' performance at https://aspredicted.org/6u6kj.pdf. To evaluate receivers' speech performance, we asked three independent raters blind to hypothesis to evaluate all of the usable practice and final speeches, using video recordings of the speeches (α = 0.70). Due to technical difficulties, not all speeches were properly recorded; in total, 88 pairs of videos were coded (86.2% of pairs). Raters did not know which videos were practice speeches and which were final speeches; they evaluated all speeches in randomized order . They were told to evaluate the speech's overall quality on a scale from 1 (*very low quality*) to 10 (*very high quality*; α = .73).

To code the feedback that givers provided we counted the total number of pieces of feedback given in each pair and asked three independent coders to classify each piece of feedback along two dimensions. On average, feedback-givers provided a high amount of feedback: more than 10 pieces of feedback each (*M total pieces of feedback* = 10.31, *SD* = 2.63). First, the raters coded each piece of feedback given as positive, negative, or neutral. Positive feedback

[15] Note that unlike in Experiments 1–4, Experiment 5 used Likert scale responses on a 1–10 scale instead of a 0–10 scale. Experiment 5 was run before the other studies and later studies used the 0–10 scale to ensure there would be a scale midpoint.

[16] We did not ask participants to predict their partners' discomfort in the postsurvey. Thus, givers answered questions about their own experienced discomfort but were not asked to estimate receivers' discomfort. Similarly, receivers answered questions about their own discomfort but were not asked to estimate givers' discomfort.

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was defined as feedback that focused on things that were done well (*M positive pieces of feedback* = 5.50, *SD* = 2.47). Negative feedback was defined as feedback that focused on things that were done poorly (*M negative pieces of feedback* = 3.88, *SD* = 1.80). Feedback was categorized as neutral when the giver pointed something out without indicating whether it was good or bad (*M neutral pieces of feedback* = 0.91, *SD* = 0.89). The coding category of "neutral" was added after we preregistered the coding analysis and is therefore not included in our preregistration. Second, the three independent coders also classified each piece of feedback according to whether it was constructive or not. Constructive feedback was defined as feedback that specifically addressed something that the participant should do to improve (*M constructive pieces of feedback* = 3.73, *SD* = 2.40), whereas nonconstructive feedback addressed no concrete areas for improvement (*M nonconstructive pieces of feedback* = 6.57, *SD* = 2.89). We averaged the three independent coders' scores (α for total feedback combined: α = .96; αs > 0.52 for the feedback type classifications). See Table 4 for examples of feedback.

Results

Desire to Receive Feedback

Replicating our results from prior experiments, and supporting our primary Hypothesis (H1), givers (*M* = 5.24, *SD* = 2.11) underestimated receivers' (*M* = 7.25, *SD* = 2.33) desire for receiving feedback in the first presurvey, $t(202) = -6.48$, $p < .001$, $d = -0.90$. Givers also underestimated receivers' desire for feedback in the second presurvey ($M_{giv} = 6.67$, $SD = 2.13$; $M_{rec} = 7.68$, $SD = 2.33$), $t(202) = -3.24$, $p = .001$, $d = -0.45$, although the effect was significantly smaller in the second presurvey (the interaction effect between condition and survey number on desire for feedback was $b = 1.01$, $p = .023$). Receivers' desire to get feedback actually increased from the first to second presurvey, paired $t(101) = 2.76$, $p = .007$, $d = 0.28$, suggesting that hypothetical predictions are conservative estimates of actual desire for feedback, and that they wanted the feedback more as it loomed closer. Givers' predictions of receivers' desire for feedback also increased from the first to second presurvey, paired $t(101) = 6.84$, $p < .001$, $d = 0.68$. We did not ask participants about the desire for feedback after the feedback was given (in the postsurvey), only during the first and second presurveys.

Potential Mechanisms: Considerations About Consequences of Feedback for Self and Others

To test which of givers' experiences or predictions are most closely aligned with their beliefs about receivers' desire for feedback, we conducted a regression model with givers' predictions about receivers' desire for feedback as the outcome variable, and givers' beliefs about their anticipated discomfort, receivers' discomfort, the potential for relationship harm, and the value of the feedback to the receiver as predictor variables (all from the first presurvey). Results demonstrated that givers' beliefs about receivers' value for the feedback significantly predicted givers' estimations of receivers' desire for feedback ($b = .58$, $p < .001$), as did givers' predictions of their own discomfort ($b = -.29$, $p < .01$), providing support for Hypotheses 5a and 2. However, givers' predictions about relationship harm did not significantly predict their estimations of receivers' desire for feedback (Hypothesis 3a; $b = -.30$, $p = .064$) nor did givers' beliefs about receiver discomfort (Hypothesis 4a; $p = .39$).

We further tested for other giver/receiver discrepancies in predicted receiver experiences (testing Hypotheses 4b and 5b). As in Experiments 1–4, givers underestimated the value of feedback to receivers in the first presurvey (*M* = 6.63, *SD* = 1.71), compared to receivers' own predicted value (*M* = 7.24, *SD* = 2.08), $t(202) = -2.28$, $p = .024$, $d = -0.32$. They additionally underestimated the value of their feedback even after the competition was over (*M* = 6.66, *SD* = 1.76), compared to receivers' perceived value (*M* = 7.55, *SD* = 1.87), $t(202) = -3.49$, $p = .001$, $d = -0.49$. Indeed, there was no shift in givers' predicted value after the competition compared to before the competition, $p = .877$, but receivers believed they had received even more value after the competition compared to what they predicted before it, paired $t(101) = 2.06$, $p = .042$, $d = 0.21$.

In terms of receiver discomfort, givers overestimated receiver discomfort in the first presurvey (*M* = 5.34, *SD* = 1.93) compared to receivers' own predicted discomfort (*M* = 4.54, *SD* = 2.10), $t(202) = 2.85$, $p = .005$, $d = 0.40$. Both givers and receivers reported feeling less discomfort than they had predicted, paired $t(101) = -2.79$, $p = .006$, $d = -0.28$, and paired $t(101) = -12.30$, $p < .001$, $d = -1.22$, respectively. We did not ask givers to predict receiver discomfort in the postsurvey so we could not evaluate whether givers overestimated receiver discomfort in the postsurvey.

To test Hypotheses 4c and 5c, we tested whether givers' underestimation of receiver value and overestimation of receiver discomfort in the presurvey significantly mediated their underestimation of receivers' desire for the feedback. In a bootstrap mediation model (10,000 iterations) that included role condition as the independent variable, predictions of receiver value and receiver discomfort (from the first presurvey) as potential mediators, and desire for feedback (from the first presurvey) as the dependent variable, a significant indirect effect emerged for receiver value (indirect effect = −.43, 95% CI [−.79, −.06], $p = .025$) and receiver discomfort (indirect

Table 4
Examples of Feedback From Each Feedback Category

Feedback type	Positive	Negative	Neutral	Constructive
Number of occurrences of each type of feedback per pair	*M* = 5.50 *SD* = 2.47	*M* = 3.88 *SD* = 1.80	*M* = 0.91 *SD* = 0.89	*M* = 3.73 *SD* = 2.40
Example quotation	Your demeanor was good. You seemed confident, especially considering you just wrote the speech.	I noticed that you used the word "like" a lot when it was not needed.	I feel like everyone can just use more hand motions in general.	I would suggest you try to slow down during your speech, and work on your pacing.

effect = −.38, 95% CI [−.74, −.16], $p < .001$). Thus, we found support for Hypotheses 4c and 5c, and stronger support for receiver value (Hypothesis 5c), replicating the pattern found in Experiments 1, 2, and 4.

How Did Feedback Influence Performance?

Table 5 shows the correlations between each type of feedback provided (positive, negative, neutral, constructive), the practice speech scores, the final speech scores, and the improvement from practice to final speeches (percentage improvement score, calculated by taking the difference between the practice speech score and final speech score and dividing it by the practice speech score). We report correlations with the percentage of positive, negative, neutral, and constructive feedback provided (instead of count data reported in Table 5) in the Supplemental Materials; results are similar.

As depicted in Table 5, not surprisingly, better practice speeches received more positive feedback and less constructive feedback, $ps < .05$. More interestingly, the amount of positive and negative feedback was unrelated to how much participants improved their score, but the amount of constructive and neutral feedback was associated with greater performance improvements, $ps < .05$, consistent with the possibility that more constructive feedback could result in improved performance.

Discussion

In a financially incentivized laboratory experiment involving real and consequential feedback, givers again underestimated receivers' desire for feedback. Interestingly, as the time to receive feedback approached, receivers had more desire to get it, suggesting that they truly wanted the feedback. Replicating the results in Experiments 1–4, in this experiment givers' underestimation of the value of feedback for receivers mediated their underestimation of receivers' desire for feedback. In addition, givers' overestimation of receiver discomfort mediated their underestimation of receivers' desire for feedback (replicating the results in Experiments 1, 2, and 4). This pattern of results provides evidence that, at least in this context, the underestimation of desire for feedback was due primarily to misunderstanding the consequences of the feedback for receivers.

This experiment provides an opportunity to examine how giving feedback is associated with performance outcomes. We found that givers were responsive to the quality of their partner's practice speeches, giving more positive feedback for better speeches and more constructive feedback for worse speeches. Furthermore, the amount of constructive feedback received was associated with an improvement in receivers' outcomes: Receivers who received more feedback from their partners had a higher percentage of score improvement between their practice and final speech scores. These effects should be interpreted with caution as they are only correlational, but they are consistent with the possibility that constructive feedback has the potential to improve actual performance outcomes.

General Discussion

People often have opportunities to provide others with constructive feedback that could be immediately helpful. Whether letting someone know that they have a typo in the presentation they are about to give to potential clients or telling a job candidate that they have a stain on their shirt before an interview, constructive feedback helps the focal individual to fix a problem. And yet, people often avoid giving constructive feedback even when it would be immediately helpful, as our pilot data show. Whereas previous research has suggested that people may withhold constructive feedback due to concerns about negative interpersonal consequences for themselves (e.g., Bond & Anderson, 1987; Brown & Levinson, 1987; Dibble et al., 2015; Ende, 1983) or due to lack of motivation to expend the effort to provide feedback (e.g., Kool, et al., 2010; Kurzban, 2016; Minnikin et al., 2021), in this article, we propose an additional, novel reason: People underestimate how much recipients want to receive feedback in the first place. Across five experiments using imagined scenarios (Experiment 1), recalled feedback (Experiments 2 and 4), and live feedback (Experiments 3 and 5), potential and actual feedback-givers consistently underestimated others' desire for feedback.

We examine two potential reasons for why people underestimate others' desire for feedback: They think too much about the consequences of giving feedback for themselves, or not enough about the consequences of receiving feedback for the other person. These reasons correspond to reasons people may refrain from having honest conversations, where people similarly weigh the "instrumental value of truth" (i.e., consequences for the other person), against the "the possible relational harm of honesty" (i.e., consequences for themselves; Levine, 2021).

Across studies, we find the most evidence that people misunderstand the consequences of getting feedback for the other person, particularly underestimating the value of their feedback for receivers. The failure to recognize how much others want feedback is potentially costly because people may be less likely to actually give the feedback if they believe it is unwanted, thus missing out on the opportunity to help others fix an issue before it is problematic. For instance, in Experiment 2, the givers who most strongly

Table 5
Correlations Between Types of Feedback, Practice Speech Scores, Final Speech Scores, and Performance Improvement Scores

Feedback type	Positive	Negative	Neutral	Constructive	Total amount
Number of occurrences of each type of feedback per pair	$M = 5.50$, $SD = 2.47$	$M = 3.88$, $SD = 1.80$	$M = 0.91$, $SD = 0.89$	$M = 3.73$, $SD = 2.40$	$M = 10.31$, $SD = 2.63$
Practice speech scores	.283**	−.143	−.199†	−.220*	.097
Final speech scores	.317**	−.072	−.097	−.146	.214*
Percentage improvement from practice to final	−.084	.156	.297**	.234*	.130

Note. Each cell shows the Pearson's correlation between the two variables. Each column is the count of the number of unique pieces of positive, negative, neutral, and constructive feedback provided. Positive, negative, and neutral feedback sum to the total amount of feedback given.
Significance is denoted by † $p < .10$.* $p < .05$. ** $p < .01$. *** $p < .001$.

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underestimated receivers' desire for feedback were the least likely to have given feedback. Not providing constructive feedback can harm a potential receiver; in Experiment 5, people who received less constructive feedback also showed less improvement in a competitive speaking contest, with less chance of winning a financial prize.

Theoretical Contributions

Our research makes at least two main contributions to the literature. First, we extend research on why people withhold feedback. Prior research has focused on a few reasons for why people sometimes avoid providing feedback to others: people's fear of negative interpersonal consequences for giving the feedback, both for themselves and the recipient (e.g., Bond & Anderson, 1987; Dibble et al., 2015) and their lack of motivation to expend the effort required to give feedback to others (e.g., Kool, et al., 2010; Kurzban, 2016; Minnikin et al., 2021). Our work explores a novel, previously overlooked reason that people underestimate the extent to which the other person wants to receive feedback. We further explore why such underestimation occurs. We consider the role of both motivation and cognition. According to the "motivated" process, potential feedback-givers convince themselves that feedback is unwanted because they themselves do not want to give it. According to the "cognitive" process, instead, potential givers overlook the other person's preferences by focusing too much on their own. Our exploration thus speaks to a larger debate on motivated versus cognitive reasons behind people's behavior (Chambers & Windschitl, 2004; Ditto & Lopez, 1992). We find that the underestimation of desire for feedback could be due to both sets of reasons, though the evidence was stronger for the more cognitive explanation.

Our work also contributes to research on self/other mispredictions in prosocial gestures. Recent work has found that people underestimate how much others will appreciate prosocial gestures such as compliments (Boothby & Bohns, 2021; Zhao & Epley, 2021), gratitude (Kumar & Epley, 2018), and honesty (Hart et al., 2021; Levine & Cohen, 2018). In some ways, the finding in the current research—that people underestimate others' desire for feedback—is consistent with these other findings, since constructive feedback can be seen as a type of prosocial gesture. However, there are some meaningful differences between constructive feedback and other prosocial gestures (e.g., giving compliments). First, constructive feedback can directly influence another person's performance outcomes, a consequence that potential feedback-givers may fail to recognize. Second, constructive feedback can have negative consequences as well as positive, such as causing discomfort for the giver, for the receiver, or for the relationship, which may reduce people's willingness to provide feedback. We thus examine new reasons for why people sometimes avoid behaving prosocially: Givers do not just fail to see others' appreciation of their good intent; rather, they overlook the tangible positive consequences of their feedback for others' outcomes and focus too much on the potential negative consequences of the feedback. This leads them to underestimate others' desire for feedback. The current findings also extend prior work by arguing and showing that people underestimate others' desire for more ambiguous prosocial gestures, in addition to more straightforwardly positive prosocial gestures.

Limitations and Directions for Future Research

Our research is qualified by several limitations that suggest avenues for future research. Though we identified a few moderators of the difference between givers' predictions and receivers' reports of desired feedback, such as the consequentiality of the feedback (Experiment 1), and how negative and useful the feedback is (Experiment 2), other moderators are likely to exist. For instance, future studies could explore the social status of the feedback-giver and -receiver. Higher-status people may be more accurate in estimating a lower-status person's desire for feedback because they may not be as concerned about affecting the relationship, given that it is more normative for higher-status people to provide feedback to lower-status people (e.g., more typical for managers to give employees feedback compared to the opposite; Van der Rijt et al., 2013). Alternatively, given that higher-status people have been found to be worse at taking others' perspectives (Galinsky et al., 2006), they may be less able to discern when others want feedback.

Future research could also examine ways to make potential givers more likely to provide feedback. In Experiment 4, we find that nudging givers to consider the perspective of potential receivers by putting givers into the metaphorical "shoes" of receivers leads givers to be more accurate in predicting receivers' desire for feedback. Building perspective-taking nudges into experiences could increase the propensity for people to give constructive feedback. For example, an organization could add prompts to formal performance evaluation feedback forms ("Would you want more feedback if you were this employee?") that may serve as reminders to managers to give more constructive feedback.

Another area for future research is to better understand how the experience of discomfort and embarrassment, both for the giver and receiver, influence feedback dynamics. All of the feedback opportunities we studied in this article involved relatively high levels of discomfort, so more deliberately varying the level of discomfort could be instructive. The present studies showed varying results in how accurate givers and receivers were in recognizing each other's level of discomfort (and predicting their own discomfort) during the feedback experience. Whereas in Experiments 1, 4, and 5, givers and receivers overestimated each other's level of discomfort, in Experiment 2, givers *underestimated* receivers' discomfort. These results suggest that there may be some conditions under which givers do not recognize how uncomfortable their feedback is to receivers, and other circumstances under which they are overly attuned to receivers' discomfort. Future research could explore whether and how anticipating negative emotions of the receiver may affect willingness to give and receive constructive feedback.

Conclusion

Feedback is key to personal growth and improvement and can fix problems that are otherwise costly to the recipient. In six studies, we examined behaviors and beliefs concerning feedback in a variety of situations and found that people consistently underestimate others' desire for constructive feedback. This is especially due to underestimating the value of their feedback to the other person. Not recognizing others' desire for constructive feedback may lead people to provide less feedback, potentially hurting others' outcomes. The next time you hear someone mispronounce a word, see a stain on their

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shirt, or notice a typo on their slide, we urge you to point it out to them—they probably want feedback more than you think.

References

Adler, S., Campion, M., Colquitt, A., Grubb, A., Murphy, K., Ollander-Krane, R., & Pulakos, E. D. (2016). Getting rid of performance ratings: Genius or folly? A debate. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, *9*(2), 219–252. https://doi.org/10.1017/iop.2015.106

Ashford, S. (1986). Feedback-seeking in individual adaptation: A resource perspective. *Academy of Management Journal*, *29*(3), 465–487. https://doi.org/10.5465/256219

Ashford, S. J., & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance*, *32*(3), 370–398. https://doi.org/10.1016/0030-5073(83)90156-3

Ashford, S. J., & Tsui, A. S. (1991). Self-regulation for managerial effectiveness: The role of active feedback seeking. *Academy of Management Journal*, *34*(2), 251–280. https://doi.org/10.5465/256442

Atkinson, J. W. (1964). *An introduction to motivation*. Van Nostrand.

Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. *Journal of Personality and Social Psychology*, *45*(5), 1017–1028. https://doi.org/10.1037/0022-3514.45.5.1017

Baron, R. A. (1988). Negative effects of destructive criticism: Impact on conflict, self-efficacy, and task performance. *Journal of Applied Psychology*, *73*(2), 199–207. https://doi.org/10.1037/0021-9010.73.2.199

Bee, R., & Bee, F. (1998). *Constructive feedback (management shapers)*. Gardners Books.

Belschak, F. D., & Den Hartog, D. N. (2009). Consequences of positive and negative feedback: The impact on emotions and extra-role behaviors. *Applied Psychology*, *58*(2), 274–303. https://doi.org/10.1111/j.1464-0597.2008.00336.x

Bond, C. F., Jr., & Anderson, E. L. (1987). The reluctance to transmit bad news: Private discomfort or public display? *Journal of Experimental Social Psychology*, *23*(2), 176–187. https://doi.org/10.1016/0022-1031(87)90030-8

Boothby, E. J., & Bohns, V. K. (2021). Why a simple act of kindness is not as simple as it seems: Underestimating the positive impact of our compliments on others. *Personality and Social Psychology Bulletin*, *47*(5), 826–840. https://doi.org/10.1177/0146167220949003

Brown, P., & Levinson, S. C. (1987). *Politeness: Some universals in language usage* (Vol. 4). Cambridge University Press. https://doi.org/10.1017/CBO9780511813085

Cannon, M. D., & Witherspoon, R. (2005). Actionable feedback: Unlocking the power of learning and development. *The Academy of Management Executive*, *19*(2), 120–134. https://doi.org/10.5465/ame.2005.16965107

Chambers, J. R., & Windschitl, P. D. (2004). Biases in social comparative judgments: The role of nonmotivated factors in above-average and comparative-optimism effects. *Psychological Bulletin*, *130*(5), 813–838. https://doi.org/10.1037/0033-2909.130.5.813

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.

Craig, K. D. (2009). The social communication model of pain. *Canadian Psychology*, *50*(1), 22–32. https://doi.org/10.1037/a0014772

De Dreu, C. K., & Nauta, A. (2009). Self-interest and other-orientation in organizational behavior: Implications for job performance, prosocial behavior, and personal initiative. *Journal of Applied Psychology*, *94*(4), 913–926. https://doi.org/10.1037/a0014494

DePaulo, B. M., & Bell, K. L. (1996). Truth and investment: Lies are told to those who care. *Journal of Personality and Social Psychology*, *71*(4), 703–716. https://doi.org/10.1037/0022-3514.71.4.703

Dibble, J. L., & Levine, T. R. (2010). Breaking good and bad news: Direction of the MUM effect and senders' cognitive representations of news valence. *Communication Research*, *37*(5), 703–722. https://doi.org/10.1177/0093650209356440

Dibble, J. L., & Levine, T. R. (2013). Sharing good and bad news with friends and strangers: Reasons for and communication behaviors associated with the MUM effect. *Communication Studies*, *64*(4), 431–452.

Dibble, J. L., & Sharkey, W. F. (2017). Before breaking bad news: Relationships among topic, reasons for sharing, messenger concerns, and the reluctance to share the news. *Communication Quarterly*, *65*(4), 436–455. https://doi.org/10.1080/01463373.2017.1286363

Dibble, J. L., Wisner, A. M., Dobbins, L., Cacal, M., Taniguchi, E., Peyton, A., van Raalte, L., & Kubulins, A. (2015). Hesitation to share bad news: By-product of verbal message planning or functional communication behavior? *Communication Research*, *42*(2), 213–236. https://doi.org/10.1177/0093650212469401

Ditto, P. H., & Lopez, D. F. (1992). Motivated skepticism: Use of differential decision criteria for preferred and nonpreferred conclusions. *Journal of Personality and Social Psychology*, *63*(4), 568–584. https://doi.org/10.1037/0022-3514.63.4.568

Ende, J. (1983). Feedback in clinical medical education. *Journal of the American Medical Association*, *250*(6), 777–781. https://doi.org/10.1001/jama.1983.03340060055026

Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology*, *87*(3), 327–339. https://doi.org/10.1037/0022-3514.87.3.327

Eyal, T., Steffel, M., & Epley, N. (2018). Perspective mistaking: Accurately understanding the mind of another requires getting perspective, not taking perspective. *Journal of Personality and Social Psychology*, *114*(4), 547–571. https://doi.org/10.1037/pspa0000115

Finkelstein, S. R., & Fishbach, A. (2011). Tell me what I did wrong: Experts seek and respond to negative feedback. *The Journal of Consumer Research*, *39*(1), 22–38. https://doi.org/10.1086/661934

Fishbach, A., Eyal, T., & Finkelstein, S. R. (2010). How positive and negative feedback motivate goal pursuit. *Social and Personality Psychology Compass*, *4*(8), 517–530. https://doi.org/10.1111/j.1751-9004.2010.00285.x

Fisher, C. D. (1979). Transmission of positive and negative feedback to subordinates: A laboratory investigation. *Journal of Applied Psychology*, *64*(5), 533–540. https://doi.org/10.1037/0021-9010.64.5.533

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*(4), 327–358. https://doi.org/10.1037/h0061470

Galinsky, A. D., Magee, J. C., Inesi, M. E., & Gruenfeld, D. H. (2006). Power and perspectives not taken. *Psychological Science*, *17*(12), 1068–1074. https://doi.org/10.1111/j.1467-9280.2006.01824.x

Gibb, J. R. (1973). Defensive communication. *Journal of Communication*, *11*(3), 141–148. https://doi.org/10.1111/j.1460-2466.1961.tb00344.x

Goffman, E. (1967). Interaction ritual. *Essays on Face-to-Face behavior*. Pantheon Books.

Grant, A. M. (2008). Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. *Journal of Applied Psychology*, *93*(1), 48–58.

Gray, K., Young, L., & Waytz, A. (2012). Mind perception is the essence of morality. *Psychological Inquiry*, *23*(2), 101–124. https://doi.org/10.1080/1047840X.2012.651387

Haidt, J., & Graham, J. (2007). When morality opposes justice: Conservatives have moral intuitions that liberals may not recognize. *Social Justice Research*, *20*(1), 98–116. https://doi.org/10.1007/s11211-007-0034-z

Harber, K. D. (1998). Feedback to minorities: Evidence of a positive bias. *Journal of Personality and Social Psychology*, *74*(3), 622–628. https://doi.org/10.1037/0022-3514.74.3.622

Hart, E., VanEpps, E. M., & Schweitzer, M. E. (2021). The (better than expected) consequences of asking sensitive questions. *Organizational*

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Behavior and Human Decision Processes, *162*, 136–154. https://doi.org/10.1016/j.obhdp.2020.10.014

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, *77*(1), 81–112. https://doi.org/10.3102/003465430298487

Jeffries, C. H., & Hornsey, M. J. (2012). Withholding negative feedback: Is it about protecting the self or protecting others? *British Journal of Social Psychology*, *51*(4), 772–780. https://doi.org/10.1111/j.2044-8309.2012.02098.x

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*(2), 254–284. https://doi.org/10.1037/0033-2909.119.2.254

Kool, W., McGuire, J. T., Rosen, Z. B., & Botvinick, M. M. (2010). Decision making and the avoidance of cognitive demand. *Journal of Experimental Psychology: General*, *139*(4), 665–682. https://doi.org/10.1037/a0020198

Kumar, A., & Epley, N. (2018). Undervaluing gratitude: Expressers misunderstand the consequences of showing appreciation. *Psychological Science*, *29*(9), 1423–1435. https://doi.org/10.1177/0956797618772506

Kurzban, R. (2016). The sense of effort. *Current Opinion in Psychology*, *7*, 67–70. https://doi.org/10.1016/j.copsyc.2015.08.003

Landy, F. J., & Farr, J. L. (1980). Performance rating. *Psychological Bulletin*, *87*(1), 72–107. https://doi.org/10.1037/0033-2909.87.1.72

Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, *46*(8), 819–834. https://doi.org/10.1037/0003-066X.46.8.819

Levine, E. (2021). Community standards of deception: Deception is perceived to be ethical when it prevents unnecessary harm. *Journal of Experimental Psychology: General*. Advance online publication. https://doi.org/10.1037/xge0001081

Levine, E. E., & Cohen, T. R. (2018). You can handle the truth: Mispredicting the consequences of honest communication. *Journal of Experimental Psychology: General*, *147*(9), 1400–1429. https://doi.org/10.1037/xge0000488

Levine, E. E., & Schweitzer, M. E. (2014). Are liars ethical? On the tension between benevolence and honesty. *Journal of Experimental Social Psychology*, *53*, 107–117. https://doi.org/10.1016/j.jesp.2014.03.005

Locke, E. A., & Latham, G. P. (1990). Work motivation and satisfaction: Light at the end of the tunnel. *Psychological Science*, *1*(4), 240–246. https://doi.org/10.1111/j.1467-9280.1990.tb00207.x

London, M., Larsen, H. H., & Thisted, L. N. (1999). Relationships between feedback and self-development. *Group & Organization Management*, *24*(1), 5–27. https://doi.org/10.1177/1059601199241002

Mercer, L. L. C. (2013). *Global performance management survey report–executive summary*. https://www.mercer.com/content/dam/mercer/attachments/global/Talent/Assess-BrochurePerfMgmt.pdf

Minnikin, A., Beck, J. W., & Shen, W. (2021). Why do you ask? The effects of perceived motives on the effort that managers allocate toward delivering feedback. *Journal of Business and Psychology*. https://doi.org/10.1007/s10869-021-09776-x

Morris, M. W., Williams, K. Y., Leung, K., Larrick, R., Mendoza, M. T., Bhatnagar, D., Li, J., Kondo, M., Luo, J. L., & Hu, J. C. (1998). Conflict management style: Accounting for cross-national differences. *Journal of International Business Studies*, *29*(4), 729–747. https://doi.org/10.1057/palgrave.jibs.8490050

Rosen, S., & Tesser, A. (1970). On reluctance to communicate undesirable information: The MUM effect. *Sociometry*, *33*, 253–263. https://doi.org/10.2307/2786156

Rosen, S., & Tesser, A. (1972). Fear of negative evaluation and the reluctance to transmit bad news. *Journal of Communication*, *22*(2), 124–141. https://doi.org/10.1111/j.1460-2466.1972.tb00140.x

Ross, L., Greene, D., & House, P. (1977). The "false consensus effect": An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology*, *13*(3), 279–301. https://doi.org/10.1016/0022-1031(77)90049-X

Ross, M., & Sicoly, F. (1979). Egocentric biases in availability and attribution. *Journal of Personality and Social Psychology*, *37*(3), 322–336. https://doi.org/10.1037/0022-3514.37.3.322

Schein, C., & Gray, K. (2018). The theory of dyadic morality: Reinventing moral judgment by redefining harm. *Personality and Social Psychology Review*, *22*(1), 32–70.

Tamir, D. I., & Mitchell, J. P. (2013). Anchoring and adjustment during social inferences. *Journal of Experimental Psychology: General*, *142*(1), 151–162. https://doi.org/10.1037/a0028232

Tesser, A., & Rosen, S. (1975). The reluctance to transmit bad news. *Advances in Experimental Social Psychology*, *8*, 193–232. https://doi.org/10.1016/S0065-2601(08)60251-8

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). "mediation: R Package for Causal Mediation Analysis." *Journal of Statistical Software*, *59*(5), 1–38. http://www.jstatsoft.org/v59/i05/.

Tziner, A., & Murphy, K. R. (1999). Additional evidence of attitudinal influences in performance appraisal. *Journal of Business and Psychology*, *13*(3), 407–419. https://doi.org/10.1023/A:1022982501606

Van der Rijt, J., Van den Bossche, P., & Segers, M. S. R. (2013). Understanding informal feedback seeking in the workplace: The impact of the position in the organizational hierarchy. *European Journal of Training and Development*, *37*(1), 72–85. https://doi.org/10.1108/03090591311293293

Waung, M., & Highhouse, S. (1997). Fear of conflict and empathic buffering: Two explanations for the inflation of performance feedback. *Organizational Behavior and Human Decision Processes*, *71*(1), 37–54. https://doi.org/10.1006/obhd.1997.2711

Yeager, D. S., Purdie-Vaughns, V., Garcia, J., Apfel, N., Brzustoski, P., Master, A., Hessert, W. T., Williams, M. E., & Cohen, G. L. (2014). Breaking the cycle of mistrust: Wise interventions to provide critical feedback across the racial divide. *Journal of Experimental Psychology: General*, *143*(2), 804–824. https://doi.org/10.1037/a0033906

Zenger, J., & Folkman, J. (2014, January). Your employees want the negative feedback you hate to give. *Harvard Business Review*. https://hbr.org/2014/01/your-employees-want-the-negative-feedback-you-hate-to-give

Zhao, X., & Epley, N. (2021). Kind words do not become tired words: Undervaluing the positive impact of frequent compliments. *Self and Identity*, *20*(1), 25–46. https://doi.org/10.1080/15298868.2020.1761438

Received August 5, 2021
Revision received January 19, 2022
Accepted January 21, 2022 ■

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